

FARM CHEMICALS

The management magazine of the industry



John W. Hall, New Chairman of NPFI Board, says:

Market promotion is major NPFI activity

AUGUST 1961

50 CENTS

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How surfactants
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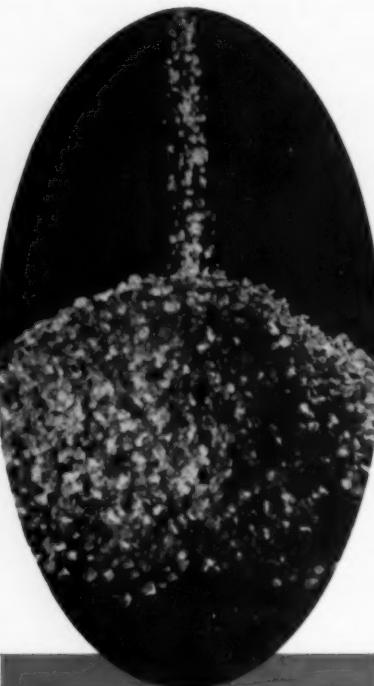
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MEMBER BUSINESS PUBLICATIONS AUDIT

The national business magazine for the fertilizer and pesticide industries, FARM CHEMICALS, serves primarily those persons responsible for management, marketing and production. It has a qualified circulation for selected executive and supervisory persons within specified segments of these industries, as well as in certain closely allied fields. Subscription rates to all others are: in the U.S., its possessions, Canada, Cuba and Panama: \$6.00; in other countries: \$7.50. Current issue 50 cents. Back issues \$1.00. (Current issues become back copies on the 5th of the month following publication.) Established in 1894 as *The American Fertilizer*.

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FARM CHEMICALS

MARKETING

- 6** FCMS: November 14-15
14 Management . . . what does it mean?
George S. Abshier and Robert D. Dahle

TECHNICAL REVIEW

- 16** How Surfactants Affect Herbicides

PRODUCTION METHODS

- 18** Deltachemie . . . Europe's Largest Fertilizer Plant
Grindrod

SPECIAL REPORT

- 23** It Happened at the Greenbrier
32 Iowa Farmers "Flunk" Their Chemical Tests

MERCHANDISING AIDS AND PROMOTION

- 28** Helping Your Dealer: The Unit Approach

MATERIALS HANDLING AND CUSTOM APPLICATION

- 34** Chemical Mowing

DEPARTMENTS

- 8** Washington Viewpoint
10 Letters
12 What's Doing in the Industry
26 Patent Reviews
30 Calendar
36 The Slurry
38 News of the Industry
 Associations and Meetings
 Chemicals
 People
 Suppliers' Briefs
42 New and Noteworthy
43 Reader Service
46 Editorial:

THE COVER STORY

It was John W. Hall, new chairman of the NPFI Board of Directors, who formally stepped forth with the statement dispelling "rumors and much mis-information concerning the course of the Institute," following the history-making annual meeting at the Greenbrier in June. The president of Potash Company of America, who had risen from northern regional sales manager to top man of the company in just 12 years, assured NPFI members that the organization would "continue to place appropriate emphasis in four primary fields of activity: 1) legislation and administrative work with Federal and State Agencies, 2) publicity and public relations, 3) broad market promotion, including agronomic activities and continued cooperation with State and local officials in their Intensified Soil Fertility Programs, and 4) maintaining liaison and service to members."

How Union-Camp's 5-Star Multiwall Plan increased a pallet payload by 400 lbs...without increasing its size!

A leading supplier of high density resins* had been packing his product in 50-lb. sewn-bottom multiwalls. This gave him an efficient, 40-bag (2,000 lb.) pallet load.

When he added a *low density* resin to his line, however, he found his existing bag wouldn't accommodate 50 lbs. of the new resin due to its increased volume. A slightly larger, sewn-bottom multiwall was tried, but this reduced the pallet payload to 32 bags (1,600 lbs.). Net "loss": 400 lbs. Net result: more handling . . . more trips to the warehouse . . . higher cost.

Heightening the pallets to 10 tiers instead of 8, offered no solution—they wouldn't pass through the existing archways. To say nothing of the problem of loading trucks and trailer cars.

New bag does the trick

At this point, the 5-Star Packaging Efficiency Plan went to work. Union-Camp multiwall specialists experimented with several different bag sizes and styles. Their solution—a multiwall with a *pasted* bottom and side gussets, a *rectangular*-shaped base—and 20 per cent more capacity!

With the new design, 50 lbs. of the low density resin can now be packed in each bag. Most importantly, the pasted bottom bags can be palletized five to a tier, eight tiers to a skid for

a total payload of 2,000 lbs.—the same as the high density resins.

Warehouse space saved

The pasted-bottom bag offered several outstanding advantages. It permitted better use of warehouse space. It increased the yield per warehouseman to 1,000,000 lbs. a month. And it initiated the development of a similar design for the company's high density resins, which could increase the present pallet payload to 2,500 lbs.



Space-saving secret is in bottom of bag. New design (left) with rectangular-shaped base has 20 per cent more capacity than sewn-bottom bag (right).

Works for you five ways

Apart from bag construction and materials handling, Union-Camp's 5-Star Plan covers bag design, packaging machinery and specifications control. An improvement in any one of these areas conceivably could result in substantial savings for you. In any case, it costs nothing to find out.

See your local Union-Camp man for complete details.



2,000 pallet load of new, low density resin bags fits easily through existing doors.

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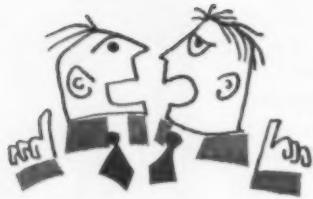
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Farm Chemicals Marketing Seminar



November 14-15

Yale Club · New York City

THE DATES are set! The third annual Farm Chemicals Marketing Seminar (FCMS) will be held November 14-15 at the Yale Club in New York City.

Whether you're a plant manager, a salesman in a small fertilizer company, or vice president in charge of marketing of a large corporation, this is a workshop for YOU.

It doesn't matter whether you're new in your job, an old pro, or "something in between" it will profit you to attend this year's meeting. In fact, you simply *cannot afford to miss it!* Those two days at the Seminar will bring you a dividend for years!

Mark the dates on your calendar now. Better yet, write and tell us you're coming and let us make an early hotel reservation for you.

FCMS has had a short history, but *what a history!* It has evolved into a thoroughly practical, down-to-earth course of instruction for all industry people, regardless of their position or experience. FCMS helps to solve problems—*your problems.* And this year's program will face the problems that confront all of us. The theme:

"Solving Your Marketing Problems in the Sixties."

Once again Dr. Hector "Don" Lazo will be our moderator. As chairman of the Marketing Department, Graduate School of Business Administration, New York University, and man-

aging director of Marketing Counselors, he comes well prepared to "direct FCMS operations."

Other participants will be announced in future issues. The same high calibre speakers as in the past are assured those planning to attend.

Key subjects will be "The Challenge of New Products," "The International Challenge Facing the Farm Chemicals Industry," "Make a Profit or Else," "Public Opinion and Its Importance to the Farm Chemicals Industry." Recognized marketing authorities and industry leaders will dig deep for positive answers to your most difficult problems.

More information will be headed your way next issue. But if you want to *get ahead in your company . . .* if you want to see your company *get a bigger slice of the profits* in your market in the sixties . . . don't wait! Sign up now!

This is a non-profit program for the industry. Thus, a nominal fee of \$50 will be necessary. This includes two luncheons, coffee breaks, a copy of the complete proceedings, plus additional copies at cost.

FARM CHEMICALS can make a hotel reservation for you close to the Yale Club if you wish. Remember, *registration is limited and demand will be great!*

For further information or to register, please contact Ed Meister, Jr., FARM CHEMICALS, Willoughby, Ohio.

The importance of follow-through in NH₃ and Nitrogen Solutions purchases

by Ray Funk

About the Author.

Follow-through is Ray Funk's specialty. He has been doing such work for 14 of the 23 years he has been engaged in sales work. For the last six years, Ray, as Product Distribution Coordinator, has devoted his time exclusively to customer service work on nitrogen products.

* * *

Follow-through on a sale is for the seller *not* the buyer. The ideal in this follow-through is to obviate the need for the buyer to do anything further after placing the order except to be ready to receive the shipment when it arrives. As a seller, we often

go beyond the delivery responsibility by helping a customer in such matters as designing facilities for storage and handling. We may also assist him with educational programs on the safe handling of the Ammonia and Nitrogen Solutions.

But there is much more than this to sales follow-through on NH₃ and Nitrogen Solutions Sales. When we receive an order for Anhydrous Ammonia or Nitrogen Solutions, we must be ready to tell the customer at any time exactly where his shipment stands and when he should be receiving it. We must know what tank cars are available, when they will be loaded and when they

will leave our siding. We must also know when the railroad who receives the car will be making it into a train. And of course, we must know the routing that will most expeditiously

deliver the shipment to the customer.

This same attention to follow-through is true of truck shipments. We schedule accurately the arrival, loading and departure of truck transports from the plant; the surest route and the time of delivery. During peak Spring and Summer this is critical. To us it is important that the needs of our customers are attended to without interruption regardless of the method of delivery or seasonal peaks.

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WASHINGTON

VIEWPOINT

By GEORGE PETER

F
C

- *It looks like the major New Frontier idea on farm policy is dead for '61.*
- *New Agriculture Secretary planning to do more business directly with producer.*

Upshot of the "farm battle of the century" is that the major New Frontier idea on farm policy is dead for this year . . . some think for all time . . . the idea that farmers should have government tools to enable them to have a greater part in supply management.

The remainder of the Kennedy-Freeman omnibus farm program proposals were traditional, but with recent lower farm income trends reversed. The Administration will be able to hang onto its higher-income-for-farmers concept to help boost the economy at the rural level. The usual price support mechanisms have been retained but at higher levels. Farmers will have to submit to more regulation in return for the higher supports.

Fear on the part of Congress, chiefly the agriculture committees, that the let-farmers-do-it features of the bill meant a big power grab by the Secretary of Agriculture played the major part in killing the proposals. Strong opposition by the Farm Bureau and the U.S. Chamber of Commerce did the rest. The other top farm groups supported Kennedy and Freeman.

Outcome for the farming business and all who are in it is more government in farm production planning — not less. Some think the "aginers" overdid themselves, if they want a freer agriculture. Several commodity groups — livestock men, poultrymen, and fruit and vegetable growers — said they wouldn't vote for price supports for their production anyway. And there is no previous indication that farmers would be any great shakes at producing farm programs, anyway.

Kennedy and Freeman didn't lose their shirts altogether. Farmers are going to have more say in future activities, whether it is spelled out in law or not. Processors, fertilizer and pesticide suppliers, bankers and others in the farming business will be able to get the USDA ear just as much as ever. But the new Secretary is also going to do more business with the producer directly.

Agriculture committee leadership of both chambers, in effect, told Freeman to use a little more of the powers he already has. He immediately restored the former farmer-elected committee system by changing the regulations governing ASC county and community committees.

In the planning are more nearly all-producer advisory committees. An increase in expense money to bring some of these to Washington to confer with USDA officials in person will be needed. But the Secretary anticipates little difficulty in this purpose.

The Secretary will initiate more marketing agreements and orders. Testimony on the bill by several commodity groups indicated they wanted or might accept this type of "tool." The Secretary already has power to initiate such agreements for a number of crops, but traditionally doesn't do so without farmer and agriculture committee blessing.

As we see it: Congress, or rather, the agriculture committees decided to limit farm policy to the usual programs of price support and controls. The Administration now is challenged to come back to Congress by next year with "new" plans — if it can manage to think of another new one.

What about the cutbacks scheduled in the feed grains and wheat programs? The acreage reductions are undeniable, but we still think they will serve more to temporarily slow down too abrupt a drop in production more than anything else. Already some of the "surplus" is seen as not quite enough. A severe drought in the Northern Great Plains has already made it necessary to halt export programs for a while so that U.S. needs can be taken care of first. Depending on how fast the Food for Peace program develops, the wheat surplus won't last long either.



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Phosphorus and Compounds of Phosphorus



LETTERS

COMMENTS & REQUESTS

Woodland, Calif.

We read with interest the special report "Liquid Fertilizers '61" in the June issue of FARM CHEMICALS Magazine.

As pioneer manufacturers and distributors of fertilizer solutions, we were particularly interested in the last two paragraphs on page 40 which indicated stainless steel Epoxy Resin coatings were the most economical and desirable tank materials. We have been fighting this corrosion problem for 16 years, until four years ago when we discovered a product known as Fluid Film which has solved all of our corrosion problems in connection with fertilizer solutions. Our trial usage was so successful and the cost of the material so low, we made arrangements for the manufacturer to distribute this material throughout the United States to other liquid fertilizer manufacturers.

Sincerely yours,
D. W. Galbraith
President
AGRIFORM CHEMICAL CO., INC.

Deurne, Belgium
We have a subscription to FARM CHEMICALS and read on page 10 of the number of June 1961:

"A plastic bottle, said to be strong enough to stand up to the high pressure needs for horticultural and agricultural spraying, has been developed by a British firm."

We beg you kindly to give us the name and the address of this British firm.

Very truly yours,
The Director
S. A. PROTEX
Write to: Testar and Swain Limited,
Birmingham, England.—EDITOR.

New York City
I have enjoyed receiving your publication. The very timely items have been very useful and informative . . .

Very truly yours,
Ralph R. Calaceto
Process Equipment Div.
AUTOMOTIVE RUBBER CO., INC.

Nashville, Tenn.
Recently I received a copy of an article entitled "Principles of Marketing Organization" by Mr. Eugene B. Mapel, vice president, Chase Manhattan Bank, New York, which appeared in FARM CHEMICALS January Volume 124 No. 1.

Because of the understandable man-

ner in which Mr. Mapel presents this topic, should these reprints be available for distribution I shall appreciate receiving thirty-five copies for distribution to our teacher-coordinators of distributive education.

Yours truly,
T. R. Petty
State Supervisor
Distributive Education
Division of Vocational Education
Tennessee Department of Education
I suggest you write to Mr. Mapel for extra copies.—EDITOR.

Auckland, New Zealand

I had occasion recently to refer to an article on Cone Mixers published in FARM CHEMICALS, April 1958.

This article was by Mr. Allen S. Jackson of Fertilizer Equipment Sales Corp.

I was wishing to contact either Mr. Jackson or Fertilizer Equipment Sales Corp. and would deem it a favour if you could advise me of the postal address of the company so that I can write them.

G. T. Mitchell
Works Manager
CHALLENGE PHOSPHATE
CO. LTD.
"FESCO" 's postal address is P. O.
Box 1968, Atlanta, Georgia.—EDITOR.

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Model N-28 (2 ton) and the N-48 (4 ton) shown, have unique no-spring, individual wheel suspension—all wheels carry equal weight at all times. These tractor pulled "compacts" make money as rental units.

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WHAT'S DOING IN THE INDUSTRY

**F
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There's a Golden Anniversary to celebrate in the fertilizer industry—what with the first appropriation by Congress for research in fertilizer technology being made 50 years ago. Responsibility for this work was assigned to the USDA in 1911 and the first Federal appropriation for fertilizer research was used to survey possible sources within the U. S. of natural fertilizers—a far cry from the current research with radioactive fertilizers and trace-nutrient minerals!

It's official . . . Federal Chemical Co., a division of National Distillers and Chemical Corp., will acquire Farm Fertilizers, Inc., through an exchange of stock. The acquisition will increase the total of Federal's plants to 10 and lead to new expansions of marketing territory. Federal now serves 10 farm states in the mid-south and mid-west, ranging from the Gulf of Mexico to the Great Lakes.

Look for "drive-up" service to become the hottest thing in the fertilizer industry. Monsanto Chemical Co. has designed a fertilizer plant on wheels that travels right to the farm and services the grower with liquid material (8-24-0) where and when he needs it. Called the "Thunderjug" because of its noisy, rumbling start-up, the pint-sized reactor is mounted on a truck. The Thunderjug produces the fertilizer solution by continuous process at double the rate possible through batch production.

There will be a lot of change jingling in the pockets of the nation's farmers this fall. In fact, an estimated \$312 million extra, the result of new federal legislation which subsidizes growers for taking land out of production. Yet, a Printers' Ink check of farm equipment makers and suppliers, agencies with farm accounts and farm media indicates that farm market advertisers are missing a chance to cash in on a real opportunity. It seems many are being fooled by the diversion of over 12 million acres of land from production. Overlooked is the predicted increased sales of fertilizers, insecticides and weed killers to farmers trying for higher yields from non-diverted acres. The check revealed no major plans to capitalize on this extra money.

Will microbial insecticides replace DDT as forest defoliators? Tests conducted by Canadian Department of Forestry showed that *Bacillus Thuringiensis* applied by aircraft was not sufficiently effective enough against spruce budworm to consider its use in place of DDT. The black-headed budworm proved susceptible to commercially produced *B. Thuringiensis*. It was possible to apply a lethal deposit from aircraft. However, residual life will have to be extended and a clumping tendency overcome before the microbial insecticide replaces DDT.

"Mr. Greeen" is the tradename for Spencer Chemical Co.'s new high analysis fertilizer containing 30% nitrogen and 10% phosphorus. A plant capable of producing in excess of 50,000 tons yearly of 30-10-0 will be built at the company's Jayhawk Works, near Pittsburg, Kan. The new fertilizer will be sold in both bagged and bulk form.

Are you seeking a plant pathologist? The Placement Service of the American Phytopathological Society has names and qualifications of candidates available for employment in plant pathology. The service is free to APS members and available to any employers with vacancies. Contact Phytopathology Placement Service, Crops Research Division, Plant Industry Station, Beltsville, Md.

That 52-foot red carpet stretched out in front of Monsanto Chemical Co.'s general offices building in Creve Coeur, Mo., last month wasn't a mirage. It was to welcome 50 employees and their families when they arrived from Massachusetts to take up quarters in the newly completed building.

A new subsidiary, the Planters Agricultural Chemical Co., has been founded by Planters Co., Pine Bluff, Ark. The subsidiary will make liquid insecticides. Dr. Paul J. Talley has been named as head of the technical staff and Bill Dunklin as sales manager. The company has already installed its formulation equipment and has a completed warehouse for storage of raw materials. The new chemical plant will be operated under the supervision of Niagara Chemical Co.

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Management

What does it mean?

This new series will show farm chemicals managers how it will pay them to use their heads, not backs. Leading off this month is a discussion on functions of management.

New Series

A wealth of material has gone into a manual which is the basis of this new series on management. The manual grew from materials presented at test demonstration schools conducted by the North Carolina State College Marketing Staff. Managers of various marketing firms through their attendance at the schools, as well as in individual consultation, also provided excellent suggestions and guidance in the preparation of the manual. The N. C. State marketing group has done an outstanding job in providing education and training in the skills and practice of management. FARM CHEMICALS is proud and happy to be able to institute this new series. If you should desire information on how these schools are set up for industry, please

contact Mr. Robert D. Dahle, Extension Marketing Specialist, North Carolina State College, Raleigh.—EDITOR.

SOME businesses are going to lose out in the 60's. Will one of them be yours? It's pretty much up to you, as manager.

Managers can no longer afford to be "Johnny-on-the-spot" to put out fires as they arise. You're going to have to change your way of doing things if you think in these hackneyed terms:

"Executive leadership means proficiency in such fields as producing, selling, operating and accounting systems, engineering, and so on."

That's not good enough for these times. What's needed?

To be sure a manager, like an athletic

coach, must know the technicalities of the game, but no matter how proficient he may still be as a player, he can't succeed as a coach by playing in place of his players.

Instead, he must manage those players so that their playing efforts will win the game.

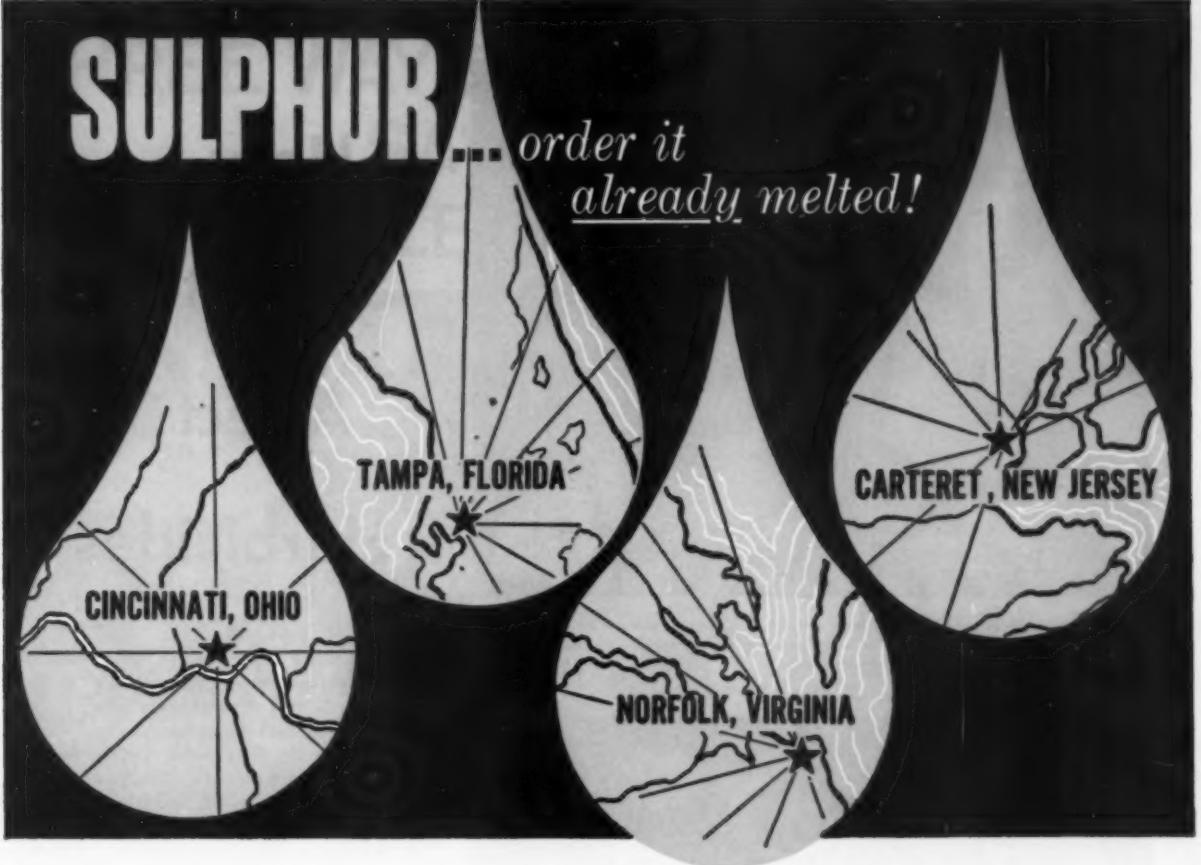
The same holds true of managers everywhere. They are supposed to be specialists in managing others, not necessarily in being able to do the work of their subordinates.

Unfortunately, too many "managers" know more about how to do the work of their subordinates than they do about managing. As a consequence, they are forever concentrating on work details rather than upon management.

(Continued to page 30)

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Our natural gas treating plants at Worland, Wyoming and Okotoks, Alberta where we recover Sulphur from H₂S are also in position to ship molten sulphur by tank car or tank truck to points in the Northwest and Western Canada.

Why not arrange to have your sulphur requirements delivered in molten form on a regular delivery schedule. We can supply you promptly!



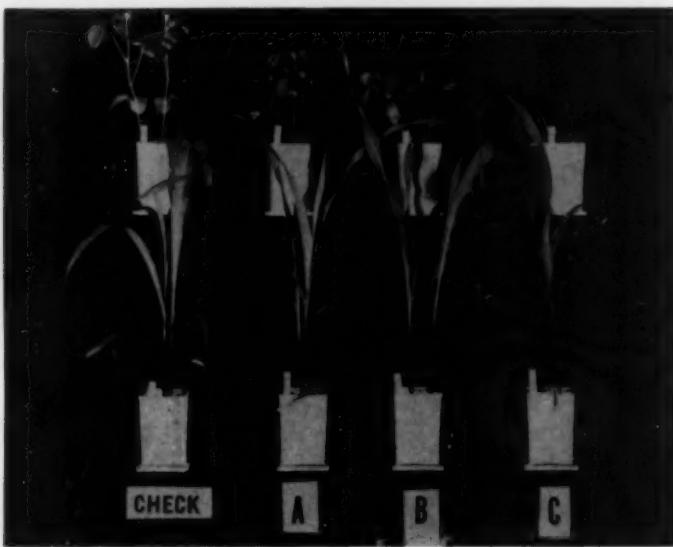
In switching over to buying your sulphur molten rather than solid, you may wish information on how best to unload and handle it. We have a bulletin on this subject which we will be glad to send.



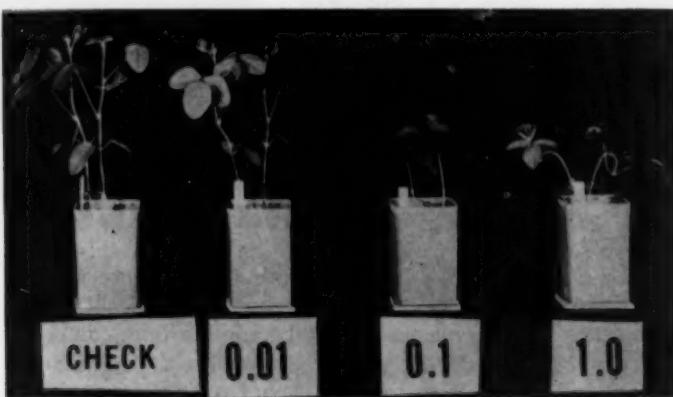
TEXAS GULF SULPHUR COMPANY

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Sulphur Producing Units: Newgulf, Texas • Moss Bluff, Texas
• Fannett, Texas • Spindletop, Texas • Worland, Wyoming
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Corn and soybean plants (above) don't react alike to 1 percent concentration of surfactants A, B, C. Plants were sprayed with 2,4-D at rate of 1/16 pound per acre. Increasing strength of single surfactant (below) boosted 2,4-D activity on soybean plants.



Slight changes in structure of single surfactant, D, made DNBP—at $\frac{1}{2}$ pound per acre—affect plants differently. Straight-chain alkyl group was attached to benzene ring at carbon atoms 1, 3, and 5 to produce the changes. Strength of surfactant was 1 percent in spray.

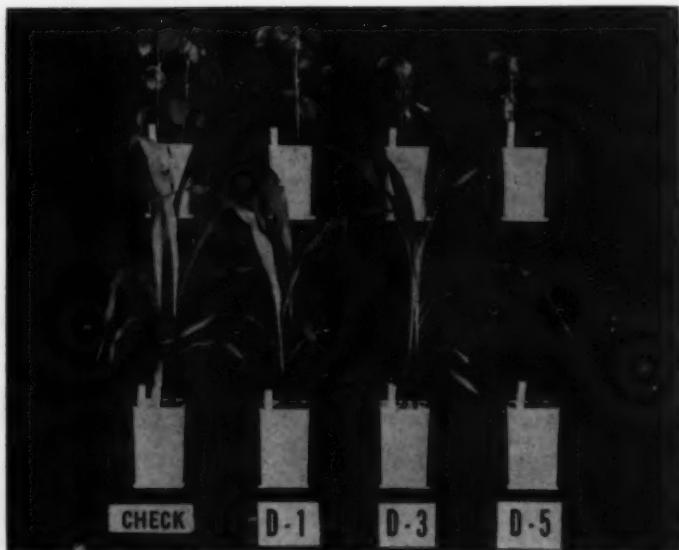
How Surfactants Affect Herbicides

MINOR CHANGES in the chemical structure or concentration of surfactants may dramatically influence the action of herbicidal sprays.

A single surfactant (surface-active agent) may increase, decrease, or not affect the action of herbicides, according to studies by Agricultural Research Service plant physiologists L. L. Jansen and W. C. Shaw.

For example, one surfactant (an alkylphenol ethylene oxide condensate) was used in a series of herbicidal sprays applied to corn as test plants. The agent increased the killing action of dalapon sevenfold and trebled amitrole activity, but didn't affect 2,4-D and DNBP.

(Continued to page 22)



THREE WAYS SAVES MONEY FOR FERTILIZER MANUFACTURERS

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FILLING!



HANDLING!



WAREHOUSING!

New kind of paper stretches to reduce multiwall costs...improve performance

CLUPAK extensible paper multiwalls g-i-v-e to absorb impact and strain... give even better performance than conventional kraft bags of heavier basis weight... produce substantial paper tonnage savings, plus other major benefits:

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CLUPAK EXTENSIBLE KRAFT PAPER

ORDINARY KRAFT PAPER

STRETCH

DELTACHEMIE...

Europe's Most Modern Fertiliser

By J. GRINDROD

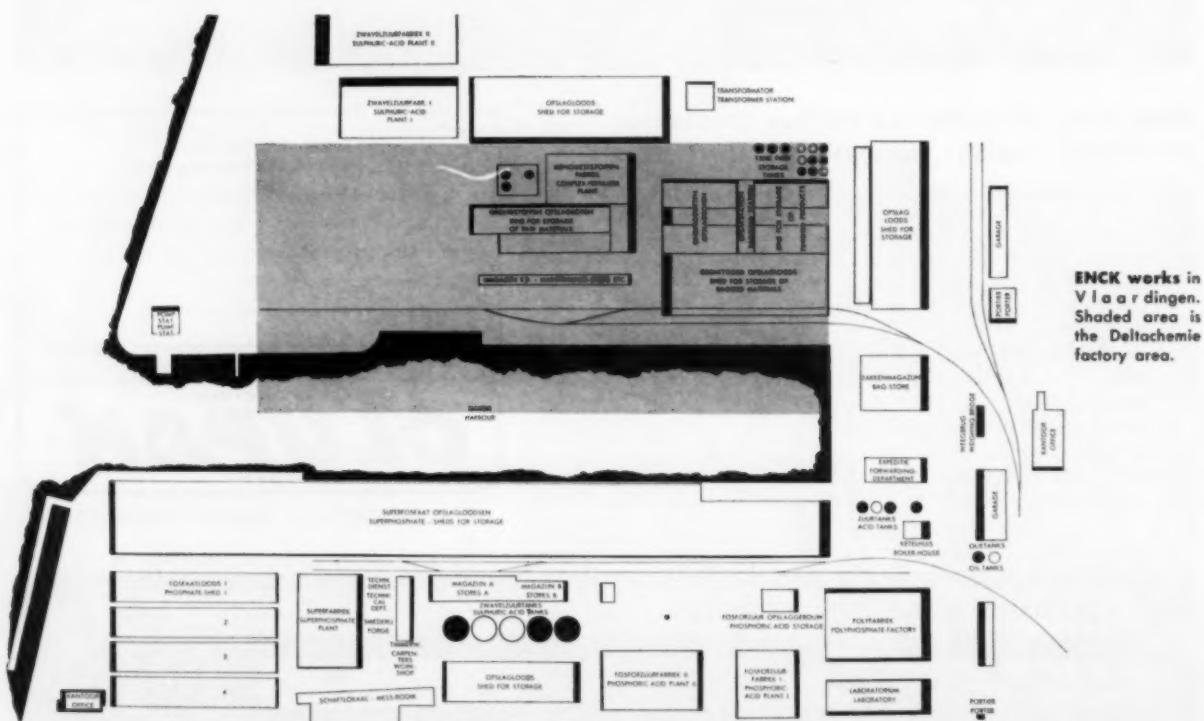
To meet the growing demand for mixed fertilizers both in Holland and abroad what is claimed to be the most modern fertilizer factory in Europe has recently been placed in production at Vlaardingen on the New Waterway, halfway between the Hook of Holland and Rotterdam by Deltachemie. It is capable of producing mixed fertilizers by four distinct methods or by a combination of such methods.

Deltachemie is owned, 50% by Eerste

Nederlandsche Coöperatieve Kunstmestfabriek (ENCK), Vlaardingen, (Windmill Fertilizer Works), 35% by the Centraal Bureau (CB), Rotterdam (National Co-operative Agricultural Buying and Selling Union) and 15% by CIV, Rotterdam (Co-operative Central Marketing Union for local Agricultural Buying and Selling Organization). Between them, these three organizations provided the \$5 million needed to finance the construction of the new plant.

With 175,000 independent farmer and market gardener members, ENCK

produced 325,000 tons of fertilizers and 15,000 tons of chemical by-products in 1959-60 with a total value of \$18½ million of which 70% was exported. The CB and CIV are the two Dutch central co-operative organizations with whom almost all the local agricultural co-operative distributors are united. Together, they account for 65% of the home market for fertilizers and their activities are so widespread that for the financial year 1959-60 the turnover of CB reached fl. 490,000,000 (\$137 million) while that of CIV reached



Fertilizer Factory



Deltachemie fertilizer plant at Vlaardingen.

fl. 405,000,000 (about \$123 million).

USE OF MIXED INCREASING

Until recently most of the fertilizers used in the Netherlands have been in the form of straight fertilizers. Consumption of factory produced mixed fertilizers has only amounted to about 7% of the total. This proportion is, however, steadily increasing as the shortage of labor for agriculture and horticulture necessitates greater rationalization of farm work.

This growing demand for mixed fertilizers and the need for a production unit capable of the most efficient manufacturing methods led to the establishment of the new plant, to which ENCK has ceded its production of concentrated complete fertilizers.

The ENCK factory, in Vlaardingen covers some 60 acres, including its own harbor, a branch of the New Waterway. Deltachemie covers about 9 acres and is situated alongside the same harbor. The factory itself includes storages for solid raw materials, storage tanks for liquid raw materials, the production building, 20 storages for finished products in bulk, a twin bagging unit and a storage for finished products in bags.

As is usual in Holland, the buildings rest on piles. There are 1850 all-told with lengths varying from 70 to 90 feet. Some 393,000 cubic feet of concrete and 1600 tons of steel reinforcement were used.

Handling equipment at the new plant

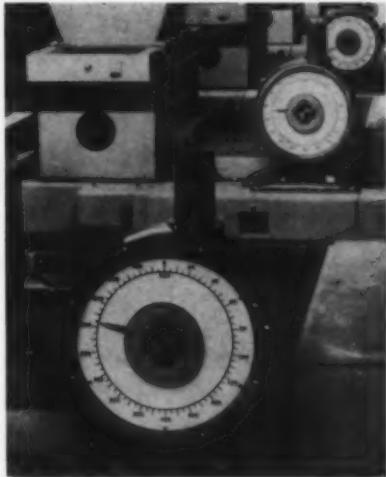
includes 3500 feet of conveyor belts and continuous proportioning installations for solid and liquid raw materials, palleting and depalleting machines and an installation for stowing bagged finished products into ships, barges and lighters. While rail and road transport is of only slight importance in the movement of fertilizers in Holland, where nearly all this traffic is waterborne, there are, nevertheless, facilities for loading trucks and rail cars in the usual way by forklift trucks for bagged products and pay-loaders for bulk fertilizers.

Everything has been done at the new Deltachemie factory to prevent the formation of dust. Two washing towers have been installed to clean the waste gases.

FOUR DISTINCT METHODS

The four different techniques that can be used at Deltachemie for the production of mixed fertilizers are: The conventional mixing method for solid materials, granulated by means of steam overheated to a specific temperature; the addition of ammonia to NPK powder mixtures, with or without the addition of acids; the ammonium phosphate slurry process; and a reaction of nitric acid on phosphate rock, followed by the addition of ammonia to the slurry.

Since a considerable portion of these installations, such as the proportioners for solid materials and liquids, the dryers, sieving installations and coolers, are required for all four systems, it is



Part of continuous proportioning installation.

possible to use a combination of the systems. This can be done by using separate reactors in the initial stage of the process and leaving the main line for each system as it is.

The new factory has been planned to produce any NPK composition required by the most economic method and the cheapest raw materials possible. The capacity of the plant is 150,000 tons. Half of this quantity will be marketed in the Netherlands by the co-operatives, the remainder exported by ENCK. ★

Dealer Training Services

Exclusively for

Fertilizer Selling

NOW — Full Orbit embraces an entirely new and bigger area of customer service. This service is specifically designed to help you increase your sales through your dealers. It includes not only assistance for your own salesmen but assistance for your dealers' salesmen. Ask your IMC representative to show these services the next time he calls.



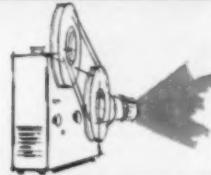
NEW! Dealer Training Package — This is a detailed description of how to conduct a successful dealer training meeting. It provides step-by-step information on proven sales techniques and offers favorable management assistance to the dealer. A strip film and scripts are specifically tailored to more profitable sales.



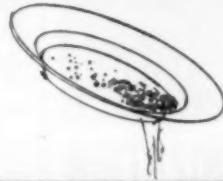
NEW! Sul-Po-Mag Flash Cards — An excellent pocket-size item which your dealers may use as a reminder of Sul-Po-Mag's unique advantages. A set of 20 cards gives your dealers' salesmen the entire Sul-Po-Mag story in a convenient manner.



NEW! Maximum Yield Forms — A powerful but easily worked tabulation which your salesmen may use with your dealers to determine profit potential in the dealer's marketing area. It dramatically illustrates the maximum benefits offered the farmer.



NEW! Training Film List — Contains a listing of important films compiled from the library of IMC, U.S. Department of Agriculture and the National Plant Food Institute. Each of these films has been selected for its pertinence to the sales problem.



NEW! Prospecting Procedures — Systematic procedures for analyzing your fertilizer market, securing new prospects, and then developing these prospects into new customers.



Farmer-Dealer Meeting Kit — The proven practical, planned way for holding successful farmer-dealer meeting. Step-by-step description includes programming, location, notification, equipment requirements, product information, group participation techniques, and other important subjects.



Let's Make Sales Today — A detailed procedure for increasing fertilizer sales now. It includes telephone selling technique, using credit as a sales tool, and interview-canvassing procedure that practically guarantees successful results.



How to Get These Dealer Training Services — Simply ask your IMC representative or write direct to:

Mr. E. C. Horne, Sales Manager
Materials Department
International Minerals & Chemical Corp.
Skokie, Illinois

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INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Agricultural Chemicals Division, Materials Dept. • Administrative Center • Skokie, Illinois



Hubbard-Hall finds ENTOLETER® CENTRIFUGAL MIXER

"The most efficient and economical"



Everett D. Marvin, Jr.,
Asst. Vice President of The
Hubbard-Hall Chem. Co.,
Waterbury, Conn.,
(agricultural dusts, wettable
powders and aerial dusting
powders) says, "The use of
the Entoleter machine puts
us in a much more favorable
competitive position. It is
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find for a combination of
mixing, particle-size
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Entoleter Centrifugal Mixers homogenize free-flowing dry mixes and slurries on either a continuous or batch basis. In addition to providing high-intensity blending and uniform dispersion of trace ingredients, the impact action of these mixers shatters nodules and agglomerates to provide a smooth-textured product. Entoleter Mixers handle from 1 to 25 tons per hour with motor options from 2 to 75 horsepower.

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TECHNICAL REVIEW

SURFACTANTS

(Continued from page 16)

On soybeans, the same surfactant doubled the action of dalapon and amitrole, and trebled the action of 2,4-D and DNBP.

In these experiments, sublethal amounts of herbicides were applied to plants so the comparative effects of surfactants could be measured. This research is continuing at ASDA's Agricultural Research Center, Beltsville, Md.

Soaps, detergents, and shampoos are commonly used surfactants. In agriculture, similar compounds are used as sticking, spreading, and wetting agents.

Why do surfactants have such effects on herbicides? Scientists don't know all the answers. But they do know that when surfactants are used at concentrations which have the most influence on a herbicide's activity, there are few changes in sticking, spreading, or wetting abilities.

Slight changes in the chemical structure of a surfactant, however, greatly influence the properties the agent imparts to solutions. Changes occur, for instance, in the solution's ability to conduct electricity and in the relative degree of colloid aggregation (clumping of dispersed, but undissolved substances). Further research is needed to explore the significance of these changes on herbicidal action.

The effectiveness of surfactants used with weedkillers varies, depending on the type and amount of surfactant and herbicide, and the plant the spray mixture is applied to.

The scientists say an increase in the amount of surfactant used in a spray may significantly alter the weedkiller's effectiveness. At a concentration of one-hundredth of 1 percent, a surfactant usually doesn't increase herbicidal activity. But at one-tenth of 1 percent, the agent might depress activity; at 1 percent, it may significantly enhance activity.

More than 100 surfactants have been studied for their effects on herbicides. Although a few of the agents are slightly toxic to plants, most are normally harmless to plants and animals.

The scientists believe surfactants might be used with weedkillers to fit specific crop-weed situations. For instance, an agent mixed with 2,4-D sharply increased the herbicide's activity on mustard without increasing its toxicity to corn plants and other grasses.

Improper use of a surfactant, however, could destroy a herbicide's selective action, increase injury to desirable plants, or decrease toxicity to weeds. So surfactants shouldn't be added to weedkillers without knowing their effects on the herbicides used.





Surrounded by lovely company, John W. Vance of Sinclair Petrochemicals pointed out to FARM CHEMICALS that his wife was on his left and that's Mrs. A. M. Horehled on his right.



"Almost" 100% cooperation by the weatherman made moments like this delightful. Then the downpour! Left to right: Dr. R. Q. Parks, W. R. Grace; J. E. Moore, Armour; B. M. Machen, Armour, and Mrs. Parks.



"**Gotcha by a hair!**" Must have been Gordon Cunningham (left) who said that because he won the singles in the age-old sport of horseshoes. One of those eliminated was Bill Nist, Dayton Fert. Corp. (right).



"**Here's the way I see it!**" Deep in discussion were (l. to r.): S. R. White, Spencer Chemical; R. A. Garn, Central Farmers Fert. Co. and Thomas E. Camp, Southwest Potash Corp.



All's well at Cyanamid, it seems, as P. R. Regan and Phil Shafer enjoy themselves.

It Happened at the Greenbrier

NPFI Meeting, June 11-14

Calendar

August 10-11. Mississippi Soil Fertility and Plant Food Council, annual meeting, Biloxi, Miss.

August 16-18. Agricultural Relations Council Seminar, The Woodner Hotel, Washington, D. C.

August 16-20. Canadian Fertilizer Association, annual convention, Manoir Richelieu, Murray Bay, Quebec.

August 29. Agricultural Engineering Field Day, Brookings, South Dakota.

September 3-8. American Chemical Society, national meeting, Chicago, Ill.

September 5-8. National Chemical Exposition, sponsored by American Chemical Society Chicago section, International Amphitheater, Chicago, Ill.

September 11-15. Instrument Society of America Instrument — Automation Conference (The Biltmore Hotel) and Exhibit (Memorial Sports Arena), Los Angeles, Calif.

October 4-6. Southeastern Fertilizer Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

October 9-11. Western Agricultural Chemicals Association, annual meeting, Hotel Claremont, Berkeley, Calif.

October 12-13. Northeastern Fertilizer Conference, Schine Inn, Chicopee, Mass.

October 29-November 1. National Agricultural Chemicals Association, 28th annual meeting, The Homestead, Hot Springs, Virginia.

November 2-3. Pacific Northwest Plant Food Association, annual convention, Hotel Gearhart, Gearhart, Ore.

November 6-7. Washington State Weed Association, annual weed conference, Chinook Motel & Tower, Yakima, Wash.

November 8-10. Fertilizer Industry Round Table, Mayflower Hotel, Washington, D. C.

November 14-15. Farm Chemicals Marketing Seminar, Yale Club, New York City. Sponsored by FARM CHEMICALS.

November 27-December 1. 28th Exposition of Chemical Industries, New York Coliseum, New York City.

December 11-14. North Central Weed Control Conference, Weed Society of America, St. Louis, Mo.

December 13-15. American Society of Agricultural Engineers, winter meeting, The Palmer House, Chicago, Ill.

February 6-7, 1962. Vertebrate Pest Control Conference, Senator Hotel, Sacramento, California.



Inside or out, the Greenbrier atmosphere stimulated good fellowship. Left to right: R. P. Bond, Stauffer Chemical; Paul J. Prosser, Baugh & Sons; W. E. Price, Swift.

The result of five years study by USDA's Agricultural Marketing Service, proves the insecticide malathion to be a safe, effective, and reliable treatment for preventing insect infestation and damage in stored stock peanuts. Close control of tolerances must be kept in both bulk and surface treatments. For recommendations concerning the use of malathion, write Marketing Information Division Agricultural Marketing Service, USDA, Washington 25, D.C., for pamphlet AMS-337, "Suggestions for Insect Control in Farmers Stock Peanuts."

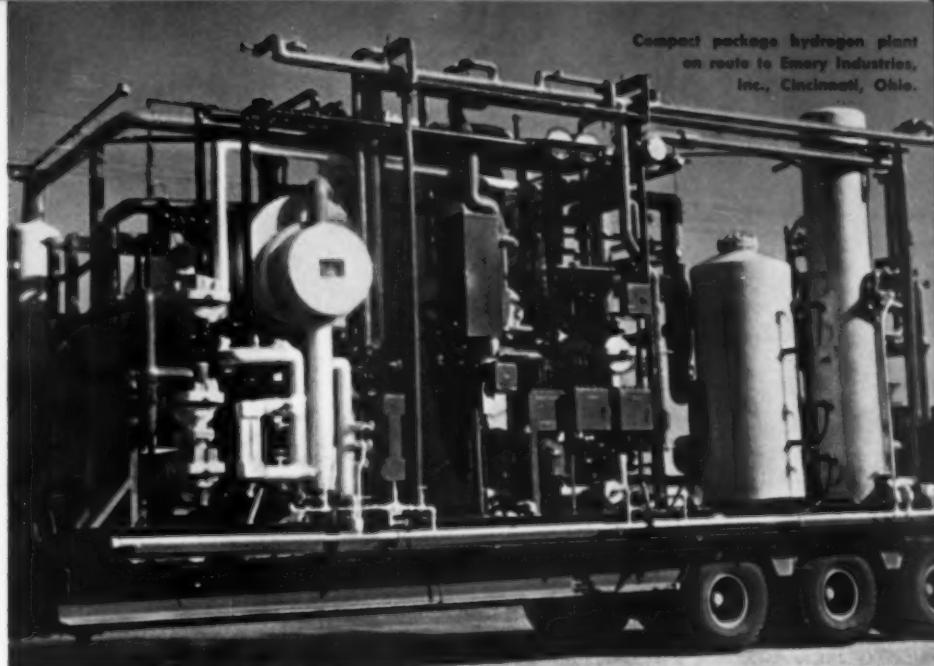
GIRDLER

builds them large and

300 ton-per-day ammonia plant at
Mississippi Chemical Corporation,
Tazoo City, Miss.



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What are your requirements? Regardless of the size of your operation, there is a Girdler process and plant designed and constructed with capacities to meet your specific needs. Both Girdler site-erected and compact package plants now in operation throughout the world are achieving great success for their users. You should consult Girdler for your Chemical and Petrochemical process and plant requirements.

GIRDLER PLANTS AND PROCESSES

HYDROGEN	MEISSNER NITRATION PLANTS	AMMONIA
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OXO SYNTHESIS GAS	AMMONIA SYNTHESIS GAS	NITRIC ACID
GAS PURIFICATION	AMMONIUM NITRATE	UREA
CARBON MONOXIDE	HYDROGEN CHLORIDE	CARBON DIOXIDE
SULFUR RECOVERY	PHOSPHORIC ACID	FERTILIZER
FORMALDEHYDE	SULFURIC ACID CONCENTRATION <i>(Plinke Process)</i>	PHOSGENE
		GAS DEHYDRATION

PACKAGE PLANTS FOR PRODUCING:

HYDROGEN	HYDROGEN SULFIDE	SULFUR RECOVERY
CARBON DIOXIDE	GIRBOTOL GAS PURIFICATION	HYDROGEN CYANIDE

GIRDLER

CORPORATION / LOUISVILLE 1, KY.

SUBSIDIARY OF THE CHEMICAL & INDUSTRIAL CORP.

Central Farmers Fertilizer Co. Develops Self Granulating Process

U.S. 2,976,126, issued March 21, 1961 to James E. Seymour and assigned to Central Farmers Fertilizer Co., describes a self-granulating process for manufacturing mixed fertilizers.

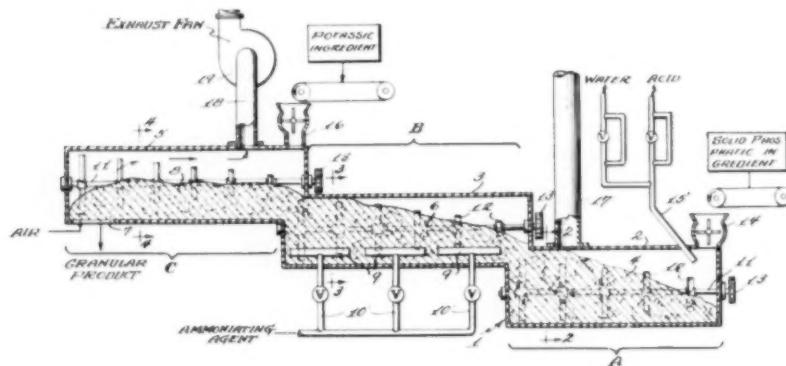
As an example of the process, the apparatus shown in the drawing may be used for the simple ammoniation of superphosphates to produce an NP fertilizer in the following manner:

Super phosphate is continuously introduced through feeder 14 at a rate such that a vapor seal is maintained at

accelerate crystallization of the product, and reactions starting with a potassium salt.

HERBICIDES AND PLANT GROWTH REGULANTS

U.S. 2,977,209, issued March 28, 1961 to Harry Tilles and Joe Antognini, assigned to Stauffer Chemical Co., discloses a method of combatting weeds with phenyl N, N-dimethylthiocarbamate and related compounds.



the end of the preliminary mixing section 2. Anhydrous ammonia is injected through sparger 9 at a rate to provide in section 3 substantially molar proportions of ammonia and monocalcium orthophosphate. The reaction mixture then advanced from section 3 to section 5 is a hot, moist solid, loss of moisture being minimized in ammoniation section 3. When this reaction mixture enters section 5 of the mixing zone, it is immediately subjected to conditions promoting evaporation of moisture. As the moisture is removed by the air current induced by exhaust fan 19, crystallization of ammonium phosphate commences and proceeds at a progressively increasing rate, as bed 8 advances, until the product is granular, the granular product being delivered through outlet 7.

The patent also discloses other types of reaction, including (1) the ammoniation of superphosphate with concurrent reaction of free acid and ammonia, (2) hydrolysis of a metaphosphate and ammoniation of the reaction mixture, (3) employment of a potassic ingredient to

U.S. 2,977,210 and 2,977,211, issued March 28, 1961 to Kenneth L. Godfrey and assigned to Monsanto Chemical Co., disclose methods for controlling vegetation with polyhalogenated toluenes.

U.S. 2,977,212, issued March 28, 1961 to Nathaniel Tischler and assigned to Heyden Newport Chemical Corp., discloses a method for controlling vegetation with 2, 3, 6-trichlorophenylacetic acid or its salts.

U.S. 2,977,285, issued March 28, 1961 to Arthur J. Birch, Ian S. Nixon, and John F. Grove, assigned to Imperial Chemical Industries Ltd., describes a metabolic process for the production of gibberellic acid.

U.S. 2,978,309, issued April 4, 1961 to Saul R. Buc and assigned to General Aniline & Film Corp., describes a method of controlling iron chlorosis in growing plants in calcareous soils having a pH range of 7.5 to 8.5, using

water-soluble salts of ferrocyanic or ferricyanic acid.

U.S. 2,978,348, issued April 4, 1961 to George R. Fessenden and assigned to Claymore C. Sieck, describes a method of preserving foliage, utilizing an aqueous solution containing a humectant having bactericidal and germicidal properties, an aluminum salt which is water-soluble below a given pH and insoluble above said pH, and a water-soluble volatile fatty acid present in an amount to maintain the solution below said pH.

U.S. 2,978,838, issued April 11, 1961 to Robert H. Beatty and assigned to Amchem Products, Inc., discloses a method of converting biennial fruit bearing trees to annual fruit bearing trees by applying a polyhalogenated benzoic acid to the trees during their fruit bearing years and during the period of their fruit-producing stage between full bloom and terminal growth.

U.S. 2,979,391, issued April 11, 1961 to Francis X. Markley and assigned to Pittsburgh Coke & Chemical Co., discloses a method of defoliating cotton, using a trimonohaloalkyl thiophosphate.

FERTILIZERS

U.S. 2,977,196, issued March 28, 1961, to Raymond C. Fleming, Jr. and assigned to International Minerals & Chemical Corp., describes a process for eliminating fluorine from phosphatic materials in solution.

U.S. 2,977,197, issued March 28, 1961 to Lloyd W. Adams and Russell K. Simms and assigned to Phillips Petroleum Co., describes a process for the recovery of anhydrous ammonia from aqua ammonia which also contains carbon dioxide.

U.S. 2,977,213, issued March 28, 1961 to Aulo Maluta and Liberio Casale, assigned to A.P.E. Applicazione Processi Elettrochimici, S.p.A., describes a process for the production of complex fertilizers containing nitrogen, phosphorus, potassium, magnesium.

U.S. 2,977,214, issued March 28, 1961 to Jack H. McLellan, describes a method for compacting and granulating dried and digested pulverous sewage sludge.

U.S. 2,978,311, and 2,978,312, issued April 4, 1961 to James E. Seymour and assigned to Central Farmers Fertilizer Co., describe processes for making phosphatic fertilizers.

GEIGY—leaders of chemicals for modern agriculture

ATRAZINE

Herbicide

For pre-emergence or early post planting weed control in corn. One application controls annual broadleaf weeds and grasses all season. Non-injurious to corn, safe to handle, non-irritating. At higher dosage rates, used as a non-selective herbicide for industry.

SIMAZINE

Herbicide

For pre-emergence weed control in corn and in nurseries. One application provides season long control of broadleaf weeds and grasses. Non-injurious to corn, safe to handle, non-irritating. At higher dosage rates, used for non-selective weed control for industry.

DIAZINON

Insecticide

Highly effective, versatile organic phosphate insecticide. For dependable multiple insect control on most fruit and vegetable crops; residual fly control in dairy barns, farm buildings and food processing plants. Extensively used by PCO industry for control of roaches and other insects.

METHOXYCHLOR

Insecticide

Multi-purpose insecticide with residual action against insects attacking forage crops and stored grain; and for control of many insect species on fruit and vegetable crops. Direct application to livestock controls horn flies, cattle lice and ticks.

CHLOROBENZILATE

Miticide

Safe, effective miticide for use on deciduous and citrus fruit, ornamentals and nursery stock. Long residual action.

SEQUESTRENE®

Metal Chelates

For correction of minor element deficiencies in ornamentals, fruit trees, vegetables and turf. Compatible with most commonly used insecticides, fungicides and fertilizers.

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MERCHANDISING AIDS PROMOTION



A Look at Unit Control

THE THEORY behind unit control is basically that it is easier to sell people what they want than it is to try to ram something down their throats with salesmanship. In other words, what most buyers would like to know is how many of these can he sell in this territory without working too hard, and would it be better to widen his lines and shorten the stock.

The purpose of unit control is to reduce the margin of error in buying as much as possible. You will never eliminate all the errors, but they can be greatly reduced.

In order to introduce the basic terms used in control forms, take a look at a small example from a simple card system (bottom of this page).

Now for an explanation of terms and their use.

Item refers to the items with enough information that it can be easily recognized.

Price is always the retail price.

Source is the place from which the merchandise is sent to you.

Minimum Package refers to smallest size package that the manufacturer

ITEM: XYZ Fly Spray **Price:** \$2.98
SOURCE: ABC MIN. PACKAGE: 12

J	F	M	A	M	J	J	A	S	O	N	D
OH	20	20	20	68	24	16	24	36	18	17	17
OO				48	36	36	48	36	24	12	
R				48	36	36	48	36	24	12	
S	0	0	0	80	44	40	24	42	13		

Illustration 1—Card system

will send, and here you may wish to make any special notes about freight if this is an important expense on this item.

The J, F, and M refer naturally to January, February and March.

The OH line means "On Hand." This is the merchandise on hand at the time of the counting.

The OO means that this merchandise was placed on order.

The R refers to received.

The S to sold.

Now in reading this system it would read as follows. On January 1 of this year, we had 20 bottles or cans, or whatever the unit might be, of XYZ fly spray on hand. We ordered none, received none and sold none in January. As a result of this flurry of activity we had 20 left on February 1st when we counted again. This month of March brought on some changes.

Anticipating some sales in the spring we ordered 48 more in March and these were received. On April 1 we had 68 on hand.

Now we begin to calculate sales:

April 1, we had 68 on hand 68
In April we received 36

Total available for sale 104

May 1, on hand 24

Therefore we have sold 80

The same process is followed for the next month:

May 1, OH 24

May received 36

Total for sale 60

June 1, OH 16

Sold 44

Part VII

What the Manufacturer Can Do for the Dealer

Let me point out that the amount sold is always a subtraction. There are many systems of doing this job, but they will all have these characteristics in common: they will tell you the number of units that were sold in a given period.

Now the first year you keep a control system it really doesn't help. It is a lot of money and time for which you seem to get no return. But suppose that our illustration 1 was the figures for last year. We are now going to buy our merchandise for this season.

Our total sales were 243 units of XYZ fly spray at \$2.98. They ran like this:

April	.....	80
May	.....	44
June	.....	40
July	.....	24
August	.....	42
Sept.	.....	13

243

Now if we were to use a model stock of two months on hand and order the third month our stock would look like this:

	J	F	M	A	M	J	J	A	S	O	N	D
S	0	0	0	80	44	40	24	42	13	0	0	0
OH	0	0	80	124	88	64	66	55	13	0	0	0
OO	0	80	44	40	24	42	13	0	0	0	0	0

Illustration 2—Model Stock

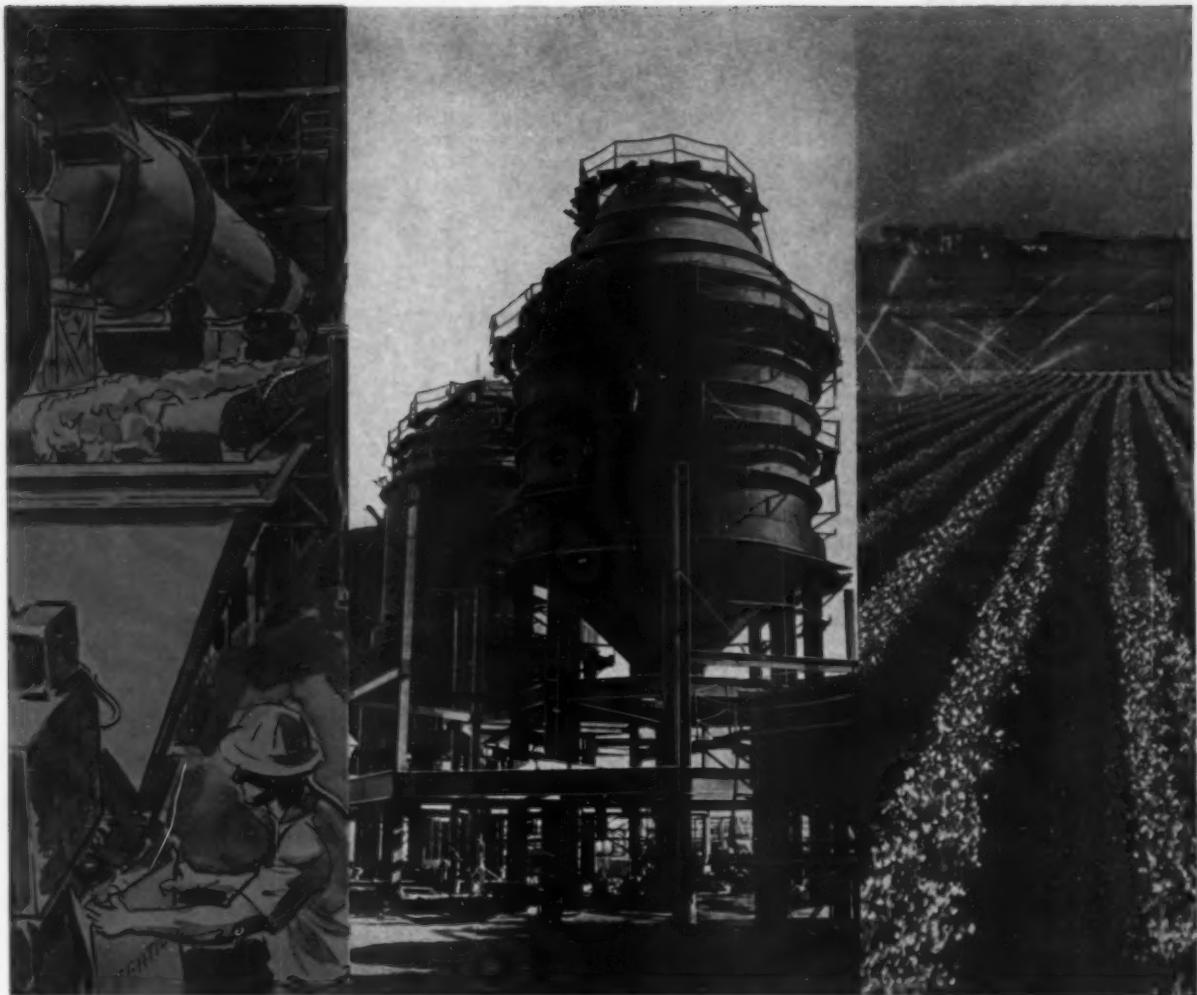
Now let me explain this a little. The sales line is for the entire month. The OH or on hand line is for the 1st day of that month, or whatever the count date is. The On Order line also refers to any time within the counting period.

In other words, you should have 80 on hand the first day of March. This represents the potential sales for the next two months. You would have ordered the March supply in February.

This model stock plan represents on paper the idea of a two months supply on hand and order the third month. You will probably never lay out a model stock like illustration 2. It is enough to see illustration 1 or the stock card itself. You can look at the On Hand and tell whether or not this is adequate for the next two month's sales.

Now why should any man in his right mind go to all this extra work? Well, let's take a look. You sold roughly 243 items at \$2.98. If your net profit was 6%, it was about \$43.51. However, you still have left 17 units which should have cost you about \$2.00 each. Now this

(Continued to page 30)



3-WAY BOOST IN POTASH

INCREASED PRODUCTION OF TRONA® MURIATE
WILL SOON MEAN BETTER SERVICE...BETTER MIXED
FERTILIZERS...HIGHER YIELDS OF QUALITY CROPS

Increased production of Muriate of Potash at Trona will be measured in three-way benefits. Expanded potash facilities, shown above, will soon make available from AP&CC more tonnage of free-flowing, uniform granule size Trona potash in granular and regular grades for agriculture's expanding needs. To the mixer, more quality potash from Trona will mean a better finished product . . . and to the grower, higher yields of quality crops.

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MARKETING

MANAGEMENT - - - WHAT IS IT? (Continued from page 14)

The ultimate result is that they neither contribute to the success of their company to the degree that they could, nor find satisfaction in their managerial positions. They hold, but don't fill, managerial positions.

New Kind Of Manager Needed

The manager of today must be different from the typical manager of yesterday. The qualifications for today's and tomorrow's manager are changing. Ten years ago when a manager was being selected, 90 to 95 per cent of the qualifications had to do with *technical knowledge*, his ability to hold down costs and make money immediately, and the evidence of successful experience in a particular type of operation for which he was being considered.

Down at the bottom of the written specifications might be a general statement regarding his ability to get along with people, and an assurance of no major scandal in his personal history.

Today 50 per cent or more of the specifications have to do with the ability to plan, organize, motivate, build morale and teamwork, maintain coordination and control, establish good public relations, and build continuity.

These are requirements over and beyond technical specializations.

Managerial specifications lay increasing emphasis on the modern manager's ability to get results through others, which is the very essence of being a manager.

Two "Kinds" of Management

The term "management" is used in two ways in business. Sometimes it refers to *people*—those who are responsible for running the business. Other times it refers to *action* or the *functions* involved in operating the business, the *what* side of management. Our attention will be directed primarily to the functions of management—the *what* side of management instead of the *who* side.

On the action or function side of the business, management is: the science or the art of combining ideas, facilities, processes, materials, and people to produce and market a worthy product or service profitably.

A business is well managed when the results are satisfying to customers, employees, stockholders, and to the public.

Good management must maintain a wholesome balance between these four groups:

- 1) the customers
- 2) the employees
- 3) the stockholders
- 4) the public

One must recognize, too, that management is something more than expertise and superiority in a specialized area.

The manager need not be a better specialist in each area in which he directs others. In fact, a really wise manager seeks to surround himself with specialists.

Some managers fear this policy; they think their power of direction depends upon their being able to "show up" each subordinate occasionally. Consequently, such a manager attracts and retains inferior subordinates; his methods get rid of those on whom he should rely for real performance. He finds himself busy most of the time doing the tough jobs for his subordinates.

Of course, doing other people's work for them makes him feel important and keeps others catering to him. But it kills managers before their time (at least chronologically). It fails to prepare subordinates to take over. It limits the expansion of the organization services because the manager believes he must be able to give personal attention to all management activities.

In contrast, the modern manager does nothing he can get others to do. His major job is the coordination of capable specialists, some of whom are potentially able to take over his job.

His usefulness is not measured by his indispensability nor by the seriousness of what would happen if he should step out of the picture—but rather by the outstanding capacity of his subordinates and the smoothness of their operations.

This leads us to the conclusion that: the basic qualifications for management are separate from, different from, and over and above experience and abilities in specialized areas.

Management in Terms of Functions

The manager today thinks in terms of functions rather than in terms of specific operations and specific methods, which should be the responsibilities of subordinates.

What are these functions: 1) planning, 2) organizing, 3) directing, 4) coordinating and 5) controlling.

These functions may occur simultaneously or consecutively. They are not necessarily separate and distinct. They do not necessarily follow any given order. All of them, however, may be performed with respect to any given operation or activity.

In this way you can see that while the activity itself is performed, it is not in itself the management process.

Management is the planning, organizing, directing, coordinating and controlling which provides for effective end results.

It is not enough to say, "Yes, I know the manager plans, organizes, directs, coordinates, and controls." The manager must be able to say:

"I know how to plan, how to organize, how to direct, how to coordinate, and how to exercise control. I know the principles underlying these functions and I am skilled in the methods and techniques of applying these principles in my own business."



Next month: How to plan.



A LOOK AT UNIT CONTROL

(Continued from page 28)

amounts to \$34.00. These seventeen units have cut your net profit to about \$9.51.

You see you don't really have a profit on any item until every one of them has been sold. From the standpoint of the merchant you would have had the same real profit, if you had only sold \$158.00 or about 53 units. Those seventeen units that you have left are still a gamble. You may or you may not sell them next year. If you don't, then you lose all the work you have done previously. The purpose of a control system is to keep those 17 units from ever getting in stock.



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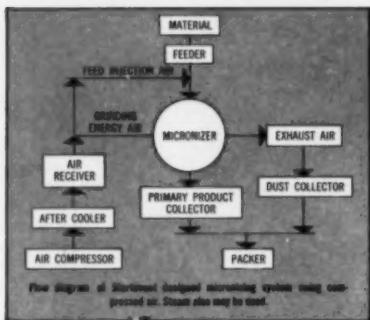


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Grinding chambers range from 2 in. diameter laboratory size ($\frac{1}{2}$ to 1 lb. per hr. capacity) to large 36 in. diameter production size (500 to 4000 lbs. per hr. capacity). For full description, request Bulletin No. 091.

Engineered for Special Needs

A 30 in. Sturtevant Micronizer is reducing titanium dioxide to under 1 micron at feed rate of 2250 lbs. per hr. For another firm, a 24 in. model grinds 50% DDT to 3.5 average microns at a solid feed rate of 1200-1400 lbs. per hr. A pharmaceutical house uses an 8 in. model to produce procaine-penicillin fines in the 5 to 20 micron range. Iron oxide pigment is being reduced by a 30 in. Micronizer to 2 to 3 average microns.

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Test micronizing of your own material, or production micronizing on contract basis, are part of Sturtevant service. See for yourself the improvement ultra-fine grinding can contribute to your product. Write for full details.
STURTEVANT MILL CO., 161 Clayton St., Boston, Mass.



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Iowa farmers flunk their "chemical tests"

Iowa farmers have been referred to as among the best in the world. Iowa is a proud state—and rightfully so. But when it comes to knowledge of agricultural chemicals, Corn State farmers have just about everything to learn! At least that's what Iowa State's celebrated researchers, Bohlen and Beal, reported recently. And that's the reason for the pitiful amount of money spent on weed killers, soil insecticides, brush killers, crop insecticides, grass killers and grain fumigants.

The following is the latest Bohlen and Beal report.

NINE out of ten farmers are using at least one agricultural chemical and one-third of 315 Iowa farmers interviewed were using only one of the six kinds of chemicals: weed killers, soil insecticides, brush killers, crop insecticides, grass killers, and grain fumigants.

George M. Beal and Joe M. Bohlen, Iowa State University sociologists, reported at the 54th annual summer meeting of the American Society of Agricultural Engineers held at Iowa State University, that the average number of the six kinds of chemicals used by all farmers in the sample was 1.85.

While most farmers were using some chemicals, about 25 percent were using them only on fencerows, ditches, and roadsides. Many of the remaining farmers were using them on a "spot," or limited application basis, on their field crops, Beal and Bohlen added.

The farmers interviewed were spending an average of only \$47.02 a year for their agricultural chemicals. Over 25 percent spent \$20 or less annually. The range was from no dollars to \$629, they added.

While only 29 percent of the farmers purchased more than \$50 worth of agricultural chemicals, this group accounted for 73 percent of the total dollar purchases.

What stops farmers from buying and using chemicals? Beal and Bohlen found the purchase cost to be the most

frequently mentioned limiting factor. Other reasons listed by farmers included: (1) Using all I need, (2) Lack necessary application equipment, (3) Application takes too much time during the busy seasons, and (4) Risk and uncertainty involved in use.

Many of these "limiting factors" appear to be indications of lack of knowledge about agricultural chemicals and their potential, they noted.

Also significant was the fact that not many farmers mentioned low return per dollar invested as a limiting factor. The people who did mention this were generally the bigger users of chemicals, they added.

Why do farmers use agricultural chemicals? Beal and Bohlen's study showed the three most often quoted answers were: (1) Best way to get rid of nuisance and/or control pests, (2) Improve crop yields, and (3) Makes the job easier.

By and large, farmers who used chemicals were satisfied with the results. However, users of soil insecticides, brush killers, crop insecticides, and grain fumigants were more satisfied with their results than were users of weed and grass killers. Some of the dissidents were expecting more from the chemicals than they were designed to do, they added.

A chemical knowledge test given to the 315 farmers revealed that there was little more than chance knowledge by farmers on chemicals and their use. Beal and Bohlen also found a highly significant relation between agricultural chemical knowledge and money spent for chemicals.

It was also noted that farmers who valued the importance of chemicals to farm income spent more for chemicals than other farmers. And farmers who kept records and used them as a basis for decision making and planning were using significantly more chemicals, they added.

Beal and Bohlen were assisted in this study by Daryl Hobbs, a graduate student in sociology. ★



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Would you like more facts about PANASOL Solvents for agricultural pesticides? Send for Bulletin No. A-2. Your inquiry will receive immediate attention.



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MATERIALS HANDLING CUSTOM APPLICATION

18 states will use MH-30 this year to retard grass growth

"CHEMICAL MOWING" ALONG THE HIGHWAY

HIghway departments in 18 states will attack the high cost of mowing roadside grass this season with a chemical spray.

About 25,000 acres of grass along-side parkways and roads are expected to be sprayed this year with MH-30, a growth retardant developed by the Naugatuck Chemical division, United States Rubber Co. Some of the highway departments have used it experimentally since 1950 for grass growth control, but 1961 will mark its first full-scale use.

Highway officials believe the chemical growth retarder will help cut back roadside mowing costs—estimated nationally at a staggering \$50 million yearly—and also help them reduce accidents among mowing crews. Each year about a dozen mowers are struck by fast-moving cars, and in recent years there have been several fatalities.

The chemical will be used mainly this season on hard-to-mow slopes which

cannot be cut with mechanical mowers, and on narrow median strips between high-speed traffic lanes. Highway departments spend up to \$500 yearly, per acre, to keep these hard-to-mow areas trimmed. The bulk of the mowing-crew

States To Use MH-30 On Grass:

North Carolina	Michigan
Virginia	Minnesota
Maryland	Iowa
Delaware	Illinois
Pennsylvania	Missouri
New Jersey	Washington
New York	Oregon
Ohio	Connecticut
Indiana	Massachusetts

Also Canada and the
District of Columbia

accidents occur on median strips.

Both types of areas will be sprayed with the chemical from a slow-moving truck. The spray-equipment operator will ride in the truck cab, or on the back of the truck. Cost of keeping grass trimmed with the chemical is estimated at \$20 per acre, and up to 30 acres can be sprayed in an hour.

HOW IT WORKS

The chemical works by preventing cell division within the grass plant. It is absorbed into the plant and moves through the plant's vein system to where cell division—a way in which plants grow—is taking place. In this growth process one plant cell splits into two, and then the two split into two more. The chemical halts this multiplication-through-division process, and upward growth stops.

Naugatuck points out that the chemical is not regarded as the answer to the lawn-mowing problems of homeowners. To get even results—and avoid browning which can occur when the chemical is sprayed haphazardly—it must be applied at a controlled rate and at an even speed. The equipment needed to do the job correctly would be more expensive than the power mowers many homeowners now use to trim lawns. *



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Aug 1961 10 % P.O. 12

Fertilizer Formula # 10

Aug 1961 12 % P.O. 12 12 %

Product	Material	Analysis		Pounds per ton		Units per ton			
		Nitrogen	Available Phos.	Phosph.	Nitrogen	Avaliable Phos.	Sulfur	Avaliable Pots.	Magnes.
381	Ammonium Sulfate	21			80				
	Nitrogen Solution								
	Sulfuric Acid 66%e								
	Superphosphate	20							
	Superphosphate	46							
	Potash			60					

What's the best formula?

Improve those high nitrogen formulas with USS Ammonium Sulfate for the top units of nitrogen. USS Ammonium Sulfate makes formulating easier, offers better-conditioned mixes and maintains higher production rates—because, USS Ammonium Sulfate is dry, stable, economical and easy to handle. When you figure those high nitrogen grade formulations for this fall—think of USS Ammonium Sulfate. USS Ammonium Sulfate is guaranteed 21% nitrogen and 24% sulfur. Fast, dependable service readily available from several plants. Contact your USS Chemical representative or nearest USS Chemical Sales Office: Pittsburgh, New York, Chicago, Salt Lake City and Fairfield, Alabama. USS Ammonium Sulfate—another quality product of United States Steel.



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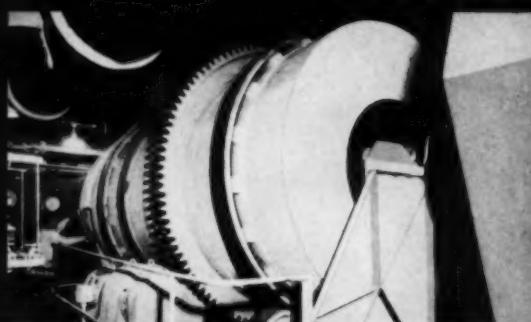
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the upcoming

"FCMS"

See page 6
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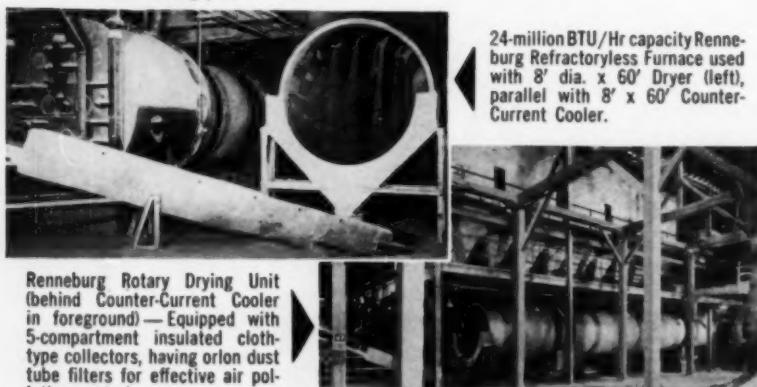
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Renneburg Rotary Drying Unit
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Literature and information on request.

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The Slurry

NO CLOTHESPINS NEEDED

"But we don't smell." That was Chemagro Corp.'s cry as citizens living near their Kansas City, Mo., plant raised a fuss about unpleasant odors they claimed were emanating from the plant. The way the citizenry was yelling, *The Slurry* thought that a clothespin popped jauntily on the nose was the fashion of the day.

Chemagro didn't take this attack sitting down. They called in Dr. Amos Turk, of Midwest Research Institute, as a chemical consultant to check the equipment installed at the plant to remove odor from noxious materials.

Dr. Turk had nothing but praise for the way Chemagro was handling the problem. Any smells escaping, he said, were the result of small leaks and spillage during transportation.

He suggested the use of standby equipment—activated carbon and hydrochloride—to be used for immediate coverage of materials accidentally spilled and also a monitoring of air in the vicinity of the plant to determine the odors in the air so they could be traced to their source.

Chemagro has followed his advice and all's well in Kansas City. In fact, there isn't even a clothespin in sight.

WHO'S A MANIPULATOR?

There's a big court battle underway in Colorado between five "manure manipulators" and the Colorado Department of Agriculture. The five manipulators are suing the department for return of more than \$10,000 they claim has been extracted illegally from them since June, 1960.

It all seems to hinge on the interpretation of "manure manipulator" as opposed to fertilizer dealer. Under the Colorado Commercial Fertilizer Law, "manure manipulators" is the term for firms who mix cow, sheep, chicken and other manures with peat and sell the resulting mixture.

The state agriculture department has been interpreting the law to include "manipulated manures" as commercial fertilizers. This makes the manipulators subject to a 25-cent a ton inspection fee.

The five firms suing the department claim that all they should be paying is a specific license fee of \$5 a year.

Outcome of the battle is still in doubt. In fact, all *The Slurry* has heard lately are charges of "some mighty funny manipulating going on" being shouted across the Pueblo state.

SYMBOLS OF PLANT LIFE



A 20TH CENTURY SYMBOL FOR
HIGHEST QUALITY POTASH

In the middle ages, working with little help from prior research, alchemists frequently developed materials by accident.

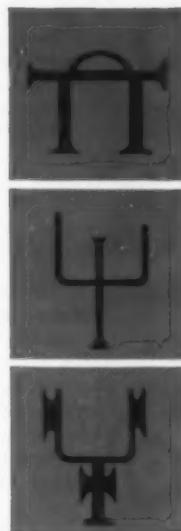
TODAY, MATERIALS ARE DEVELOPED BY PLAN TO MEET A NEED—JUST AS EACH TYPE OF HIGH-K MURIATE IS MADE TO MEET SPECIFIC REQUIREMENTS.

STANDARD HIGH-K MURIATE IS TAILOR MADE FOR CONVENTIONAL FERTILIZER MANUFACTURE AND VARIOUS RATIOS OF GRANULATED GRADES. IT FEATURES UNIFORM PARTICLE SIZE RANGE AND CHEMICAL ANALYSIS.

COARSE HIGH-K MURIATE IS USED IN THE MANUFACTURE OF CONVENTIONAL FERTILIZER AND IS ESPECIALLY USEFUL IN GRANULATION PLANTS. REASON: A CRYSTAL STRUCTURE WHICH DOES NOT BREAK DOWN WHEN ACIDS AND OTHER LIQUIDS ARE USED IN FORMULATION.

GRANULAR HIGH-K MURIATE IS A LARGER PARTICLE SIZE MURIATE FOR SPECIAL USE. SOUTHWEST POTASH PIONEERED THE PRODUCTION OF THIS ALL COMPAKTED PRODUCT.

OUR PLANT PROCESSES ARE CONTINUALLY BEING MODERNIZED TO SUPPLY TYPES OF MURIATE NEEDED AND PREFERRED BY FERTILIZER MANUFACTURERS. ON SCHEDULE SHIPMENT, CAR AFTER CAR, DAY AFTER DAY, IS MAINTAINED THROUGHOUT THE YEAR.



Medieval alchemists' symbols for potash and cibbled ashes

SOUTHWEST POTASH CORPORATION

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NEWS OF THE INDUSTRY

National Agricultural Chemicals Association has streamlined its staff structure to create career positions. Under the new set-up L. S. Hitchner will assume duties of a full-time president. Other new appointments: Jack Dressen, secretary; Lee H. Grobe, treasurer; J. A. Noone, technical director; and Denis Hayley, director of information. Dr. George R. Ferguson, president of Geigy Agricultural Chemicals, has been named chairman of the board of directors and H. F. Tomasek, president of Chemagro Corp., vice-chairman. New board members are Howard J. Grady, president of Ortho Division of California Chemical Co., and Daniel J. Keating, vice-president and general manager of Stauffer's Agricultural Chemicals Division.

An agreement between the Pulp & Floc Div. of **Brown Co.** and the Dicalite Dept., Mining & Mineral Products Div., **Great Lakes Carbon** Corp., makes Dicalite Dept. exclusive sales representative for Solka-Floc, a cellulose filtering agent made by Brown Co. Territory includes the 50 states and Canada.

When **American Oil** Co.'s new anhydrous ammonia terminal at Joliet, Ill., is completed, the company will be able to receive, store and reship anhydrous ammonia by rail, water and truck transport on a 24-hour basis. D. J. Strube, manager of American Oil Nitrogen Products Dept. reports storage will be provided for 15,000 tons of anhydrous ammonia in a low-pressure refrigerated tank. Located next to the Amoco Chemicals Corp. plant on the Des Plaines River, the terminal is being built by Chicago Bridge & Iron Co.

Gulf Oil Corp.'s multi-million dollar oxo alcohol unit, at the Philadelphia refinery, is completed and on stream, according to Badger Mfg. Co., engineering and construction contractor. The unit is designed to produce octyl, decyl and tridecyl alcohols from heptene, nonene and dodecene. Among uses of the products are in weed killers and surfactants.

Fertilizer use in New Mexico continues to rise, according to figures released by Russell Ludwick, head of feed and fertilizer control for the State Department of Agriculture. Figures

compiled from notices of shipments for the period Jan. 1 through March 31, 1961, show that farmers in the state purchased 23,207 tons compared with 20,476 for the same 1960 period.

Biggest gains were registered by urea compounds; 2,132 tons in the first quarter of 1961 versus 1,589 tons in the corresponding 1960 period.

A hot topic in the Southeast is the \$5 million expansion program of **Southern Nitrogen Co., Inc.** Production of anhydrous ammonia at the company's



Paul T. Truitt (right) is not only president of National Plant Food Institute but a true Kentucky Colonel. He was commissioned during the recent meeting of Association of Southern Feed, Fertilizer and Pesticide Control Officials in Lexington. Presenting commission is J. D. Stewart, Jr., of Federal Chemical Co., Louisville.

Savannah Works will be jumped from 100,000 to 150,000 tons a year. President John R. Riley reports Southern Nitrogen will also expand its nitric acid and ammonium nitrate production at Savannah at a cost of \$1.3 million.

Idaho farmers apparently used 15 per cent more chemical fertilizer last year than they did in 1959. The estimate is based on 150,000 tons registered for use in 1960. Total value of the fertilizer was about \$14 million.

MFA Plant Food Div. is operating a new bulk fertilizer mixing plant and bagged fertilizer warehouse at Lebanon, Mo. Jim Forgey, manager, says all base grades used in the mixes are granular. And "each order is freshly mixed and screened before being loaded into the truck."

Three new installations to convert anhydrous ammonia to 20 per cent aqua ammonia have been put into operation by the **Indiana Farm Bureau** Cooperative Association. One

at the Clinton County Farm Bureau Coop's bulk fertilizer plant began producing in April, and the others at IFBCA's plants at Columbus and Indianapolis, in May.

Kentucky farmers' fertilizer purchases increased five-fold in the period 1940-1960, the UK agricultural experiment station feed and fertilizer department says. The department issued a report recently showing that in 1940 total fertilizer purchases in the state amounted to 117,000 tons of mixed and straight-material fertilizers. But in 1960, the total was 563,978. Analysis used in highest tonnage in 1940 was 3-8-6; in 1960, 5-10-15.

In March, **Alabama farmers** bought nearly 12,000 tons of fertilizer more than they did in March 1960. Total tonnage from last October through March was up over 20,000 tons from the same period a year ago.

Chemicals

Ethion formulations are now being used by 11 companies to fight the mounting chinch bug problem in turf. Because the problem is particularly acute where St. Augustine grass is grown, it was used in tests determining the effect of ethion on chinch bugs. Four weeks after application, control was measured at 97%. In six weeks, 91% control was still evident.

The door has opened to much wider use of Thiodan pesticide with the announcement by **Niagara Chemical Div.** of Food Machinery and Chemical Corp., that the Food and Drug Administration has granted tolerances for residues of 2 ppm Thiodan insecticide on 10 crops. Until now the chemical could be used for these crops on a non-residue basis only, thus limiting its use. Already popular for its control of potato pests, Thiodan has been found effective on 31 crops, controlling about 38 differentsects.

Phleomycin, a new antibiotic, has prevented or cured rust disease of snap beans in greenhouse experiments at USDA's Agricultural Research Center in Beltsville. This disease is becoming increasingly severe in fall-grown snap beans in parts of some eastern seaboard

(Continued on page 40)

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USE "TAKO" Airfloated Colloidal Kaolin, Fertilizer Grade, excels as a coater-conditioner of granulated or prilled high analysis and mixed fertilizers. Large tonnage used year after year. COSTS SO LITTLE — DOES SO MUCH.

THE THOMAS ALABAMA KAOLIN COMPANY 2412 KEN OAK ROAD

USE WITH CONFIDENCE

QUALITY AND SERVICE SINCE 1939

AIRFLOATED
BAGGED OR BULK

GUARANTEED
LESS 1% FREE MOISTURE

BALTIMORE 9, MARYLAND

Fertilizers won't cake—flow freely in the field

Many a farmer has been cursed by the serious caking problem which so often occurs when deliquescent fertilizers are stored in damp or humid conditions. And many a formulator has learned that this can easily be prevented by using Celite*. These tiny particles of diatomite surround the fertilizer crystals or prills with

a protective coating that can prevent contact between them and thus minimize caking.

At the same time Celite fillers improve flowability. The particles are not only microscopic in size but extremely irregular in shape. Thus Celite coated fertilizers flow more freely. As little as 2% of Celite assures more uniform

application in the field.

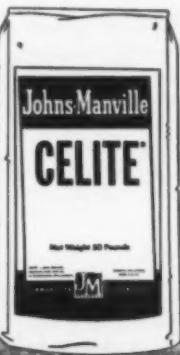
A Celite engineer will gladly help you put the right grade to work in your fertilizer. Just phone him at your nearest Johns-Manville sales office or write Johns-Manville, Box 14, New York 16, New York. In Canada, address 565 Lakeshore Road East, Port Credit, Ontario.

*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.

when formulated with

CELITE

diatomite fillers



Johns-Manville CELITE

INDUSTRY'S MOST VERSATILE
MINERAL FILLER

NEWS OF THE INDUSTRY

states. In the tests, phleomycin—known to be effective against organisms causing human and livestock diseases—protected bean plants from rust infection many times more effectively than chemicals or antibiotics commonly used, USDA said.

Butonate, a new insecticide, developed at the University of Wisconsin, is considered one of the safest for household use. It is nonstaining, inoffensive in odor, and yet effective against many common insects. Butonate is now undergoing field tests for various agricultural applications. Prentiss Drug and Chemical Co. has been granted license to manufacture this new pesticide.

Thrips on Bermuda grass grown for seed can now be controlled with applications of the new Sevin sprayable insecticide by Union Carbide Chemical Co. Because it is toxic to honeybees, evening applications are preferred. Sevin is also being used extensively in field applications on cotton, fruits, and vegetables.

People

Gilman Paper Co. Simon Posen has been promoted to vice president in charge of special assignments, and Stuart Bergman to director of technical services.



Tucker

Mid-South Chemical Corp. Leon M. Tucker has joined the firm as administrative assistant to Harry Gunther, manager of operations, it was announced by David H. Bradford Jr., vice president. He is an airplane pilot with more than 6000 hours of flying time, which will be valuable experience in his work with the company, since it uses airplanes extensively in its operations. He is a graduate of the Missouri Military Academy and he attended the University of Arkansas.

Hayes-Sammons Chemical Co. Thos. B. Sammons, Jr., has been elected secretary. He remains chairman and chief executive officer. Cornelius Vanderulis, senior vice president, was elected treasurer. They replace E. H. Metz, who resigned. Ed Andrews has been named general manager of the retail store division.

Pittsburgh Plate Glass Co. Frank G. Moore, 65, who retired last February as general traffic manager of Columbia-Southern Chemical Corp., died April 29. He had been with C-S for 26 years.

Central Chemical Corp. has named Frank B. Springer, Jr., technical service representative. He succeeds W. T. Brown, who has assumed a central sales territory in Maryland, Virginia and West Virginia.

Armour Agricultural Chemical Co. The new plant manager of the company's fertilizer plant in Columbia, S.C., is Charles H. Freeman. The announcement was made by H. Vise Miller of Atlanta, vice president of Armour Agricultural Chemical Co., and general manager of the firm's fertilizer division. Miller has been in the manufacturing department of the company's Dallas, Texas, plant.

Bartlett - Snow - Pacific Division of Bartlett-Snow-Pacific. James W. Hill, a 1925 graduate of Case Institute of Technology, Cleveland, Ohio, and plant superintendent of the C. O. Bartlett and Snow Co. since 1942, has been named plant manager of the company which has been newly formed from the consolidation of the C. O. Bartlett & Snow Co. and Pacific Foundry and Metallurgy Co. Dan S. Mortensen, executive vice president and general manager, who made the announcement, said that Hill will have complete charge of all manufacturing



Hill

operations of the company's product lines.

Eastern States Farmers' Exchange. Chas. L. Hovey, previously head of agricultural chemicals research, advances to manager of Eastern States activities within his area in Connecticut and western Massachusetts. David H. Marsden becomes head of the agricultural chemicals research department.

Du Pont Co. Chester E. Graves, manager of the Palo Alto, Calif., biochemicals sales district of the Industrial and Biochemicals Dept., retires July 1 after 32 years with the company. Jack R. Nail, export sales manager of the department, returns to Palo Alto to assume the duties of district sales manager.

Rockwell Mfg. Co. William R. McLaughlin becomes manager of the newly created New Products Div. for Rockwell's Meter & Valve Div.

Graver Water Conditioning Co. Marvin Lane, general manager, has been awarded the new title of president of Graver, a Union Tank Car Co. division.

International Minerals and Chemical Co. The materials Dept. of the company has promoted two district sales managers to regional sales managers. Thomas A. Bruns of Columbus will be responsible for the sale of agricultural chemicals in the New England area as well as Virginia, West Virginia and Canada. He started with the company in 1946 as sales clerk. Judson H. Drewry Jr., Maitland, Fla., will have the region of Florida, Georgia, North and South Carolina, Alabama and the eastern two-thirds of Tennessee. He has been with the company since 1949.

Bemis Brothers Bag Co. Richard B. Windhorst, sales manager of the St. Louis sales division of the company since 1958, has just been appointed

(Continued on page 44)

Important to PESTICIDE FORMULATORS!

It's results that count when pesticides are applied for pest control... and the farmer is depending on you to use a carrier which GETS THE JOB DONE BEST!

For better Pesticidal Action... at no extra cost,
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A 1960 test at the University of Wisconsin, against the northern corn rootworm, showed 3.5% corn lodging where ½-pound per acre of Heptachlor was used as a row treatment (involving 10% Heptachlor on 24/48 CREEK-O-NITE granules.) Untreated corn had 96.6% plant lodging in this experiment!

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How to boost your profits on alfalfa fertilizers...

Offer an "alfalfa special"—a little borax added to your mix is all it takes to provide you with a product that has a lot of sales plus. Borax is so vital to the profitable growth of alfalfa that most large producing states recommend annual applications.

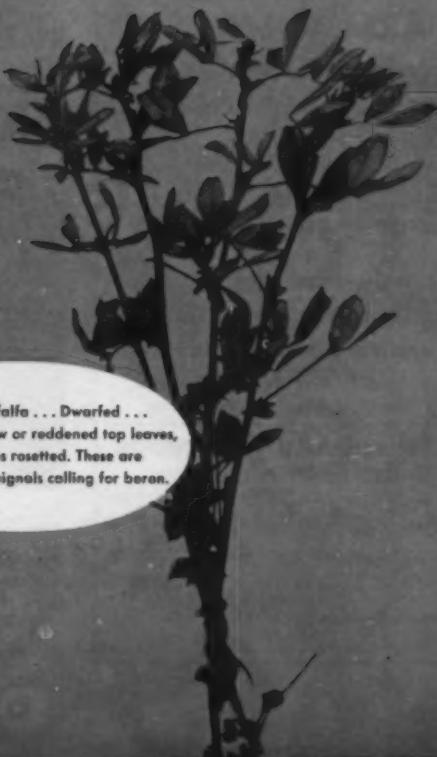
Formulate a borated fertilizer to fit your area's soil needs... it can boost yields for the farmer and build bigger profits for you.

Get the full borax profit story—write to Plant Food Sales, U.S.BORAX, 50 Rockefeller Plaza, New York 20, N.Y.

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Top-quality Alfalfa . . . Fertilized with boron, grows lush and strong — provides maximum yields with increased profits. Such vigorous growth shades out weeds and results in longer life stands.

Boron-hungry Alfalfa . . . Dwarfed . . . with yellow or reddened top leaves, stunted; growing tips rosetted. These are nature's distress signals calling for boron.



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- 2—2600 gal. T316SS tanks, coils.
- 4—2100 gal. T304SS tanks, coils.
- 2—2700 gal. T316SS tanks, coils.
- 5—Shriver 48" C.I. filter presses.
- 4—Ing.-Rand 6" x 5" 316 st. st. pumps.
- 6—Valley 36" aluminum filter presses.
- 1—Worthington 70 cu. ft. rot. batch blender.
- 1—Raymond 66" 6-roll mill, rebuilt.
- 2—Raymond 50" 5-roller hi-side mills.
- 2—Davenport 8' x 60' rot. dryers, 7/16" welded.
- 1—7'-6" x 62' rotary cooler, 1/2" welded.
- 1—Louisville 5' x 25' steam-tube dryer.
- 1—Louisville 4'-6" x 25' steam-tube dryer.
- 1—Standard 3' x 23' rotary dryer.

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- 1962 -

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Title _____
Company Name _____

NEW & NOTEWORTHY

LIQUALIZER

Liquid fertilizer plants are springing up all over the country. The savings to the manufacturer and the farmer indicate that this trend will gather velocity during the months ahead.

The Liqualizer pictured has been



performing ideally in the Middle West and the unit I saw at the Carpenter Supply Company in Iowa provides complete solubility. It's fast and the semi-automatic features are outstanding. A hydro-mix jet and whirlpool action provide superior blending, and scale control of ingredient flow makes precise formulation standard. You'll want to know more about the Barnard & Leas Mfg. Co.'s Liqualizer, so

CIRCLE 172 ON SERVICE CARD

BUILT TO LAST

Liquid fertilizer distributors have written to us inquiring where self-priming liquid fertilizer pumps can be purchased which will last. Reports from



distributors who are having success with their pumps indicate that the pump shown in the accompanying illustration does the job.

This self-priming pump is of copper-free aluminum with stainless steel parts.

What's equally important, there's a model to fit your requirements.

For more information about this Gorman-Rupp pump

CIRCLE 173 ON SERVICE CARD

PIPER SWATHMASTER

Out in Washington, Aircraft Applicators, Inc., have proved to themselves that Piper aircraft equipped with Swathmaster gives 70-foot swath widths with an effective and uniform 50-foot



width center while flying at 35 to 50-foot altitudes.

Flying at 3 to 5-foot altitudes, 40-foot swaths were obtained without streaks or humps in the swath center while applying Niagara Kolodust. Tests reveal that the Swathmaster offers considerably less drag than with conventional gear. The Swathmaster weighs only 90 pounds and you'll want to know all about this Transland Aircraft. Just

CIRCLE 174 ON SERVICE CARD

WE'VE USED IT

We do a lot of work experimentally, and we have long sought a lubricant that penetrates. We've found it in Dri Slide.

This new product penetrates to the wear areas and coats them with a highly



resistant dry film lubricant. It is molybdenum disulfide dispersed in light petroleum hydrocarbons.

The lubricant will provide greater life and low maintenance for all types of equipment. In fact, Dri Slide is a maintenance tool. To get all the facts, just

CIRCLE 175 ON SERVICE CARD

READER SERVICE

FREE INFORMATION to help you
solve fertilizer, pesticide problems

Chemicals

MOLD GROWTH PREVENTATIVE

Monsanto Chemical Company's Inorganic Chemicals Division has announced the publication of a technical bulletin describing the use of Binstat (sodium metabisulfite) as a low cost preservative for preventing and retarding mold growth in high moisture corn and milo during storage and transportation. The results of tests covering several geographic areas and various time periods are given in this 25-page bulletin. Application methods, costs and effects of this preservative are included in this bulletin, which may be obtained by

CIRCLING 161 ON SERVICE CARD

MODERN SULFUR MINING

A revised edition of *Modern Sulfur Mining* has just been issued by Texas Gulf Sulphur Company. This edition updates statistical data and newest developments in distribution and production of sulfur. Establishment of molten sulfur terminals on the Mississippi and Ohio River systems, in Florida, and along the Eastern Seaboard is just one of the new developments described. An important technical development in sulfur mining has been the application of directional drilling technique. Better utilization of heating water and longer well life have permitted efficient re-working of areas exhausted by vertical mining. More information may be obtained simply by

CIRCLING 162 ON SERVICE CARD

PESTICIDE SOLVENTS

A uniform high quality is just one property of these three solvents for effective agricultural pesticide applications: Panasol RX-4 is a Xylene type solvent, with a high aromatic content—94%, plus a low phytotoxicity, and a narrow boiling range. Panasol AN-2K achieves high solvency at low cost. It is a heavy aromatic naphtha type, with a high flash—200°F. Panasol AN-2 is a high solvency naphtha type with the desirable qualities of low temperature stability and is nonstaining. The bulletin from Amoco Chemicals Corporation may be obtained by

CIRCLING 163 ON SERVICE CARD

Process Equipment

NEW SPECTROPHOTOMETER

Only 10 minutes of instruction with this low-cost, compact double-beamed (DB) Ultraviolet Spectrophotometer, and you are ready to use it either as a direct reading instrument or, with a recorder (such as the Beckman Potentiometric Strip Chart), as a ratio-recording spectrophotometer. The Scientific and Process Instrument Division of Beckman Instruments, Inc., in their new 16-page bulletin, describes major features, outlines specifications, and explains the optical system and operating principles of the spectrophotometer. Other benefits include both programmed and manual slit operations: direct reading; AC line operation; standard

electronic tube requirements; differential analysis and flame photometry. To find out more about this precision instrument,

CIRCLING 164 ON SERVICE CARD

CENTRIFUGAL MIXER

Fertilizer manufacturers will want to learn more about Entoleter centrifugal mixers for homogenizing free-flowing dry mixes and slurries on either a continuous or batch basis. In addition to providing high-intensity blending and uniform dispersion of trace ingredients, the impact action of these mixers shatters nodules and agglomerates to provide a smooth-textured product. To learn how Entoleter can help solve your mixing problem.

CIRCLING 165 ON SERVICE CARD

Materials Handling

PAYLOADER

Users of the Frank G. Hough Company's Payloader tractor-shovel are enthusiastic about its dependability, its minimum maintenance costs with maximum production output, and its ability to perform under all conditions. Its design includes over 100 "O" rings and other seals used on hydraulic and mechanical systems to keep dirt out and oil and grease in. To learn how to get the most profit out of your bulk handling, send for *Industrial Materials Handling from A to Z*. Just

CIRCLING 166 ON SERVICE CARD

STAINLESS STEEL TANKS

You may not need to spread 49 tons of liquid fertilizer in a day, but for handling large quantities of liquids, nothing surpasses a 1200-gallon stainless steel tank. Since it is corrosion-resistant, no scale forms. There is no wasted time for cleaning, which increases the time available for customer service. United States Steel's booklet, telling about these tanks, may be obtained by

CIRCLING 167 ON SERVICE CARD

AUTOMATIC WEIGHT SENSING

The Exact Weight Scale Company, developer of the Exact Weight principle as applied to weight sensing machines, has just published an eight-page, illustrated manual, to show how this measurement of force can be widely utilized. The Shadograph scale principle consists essentially of a one-to-one ratio

pre-determined weight scale with a transducer for converting lever movement into an electrical readout signal. This signal is then available to perform such operations as classifying and counting by weight groups, and controlling processing equipment for product packaging. Such control is faster and more exact than human judgment. Items of any shape, in capacities from two grams to 100 pounds, can be custom-engineered. For your brochure

CIRCLE 168 ON SERVICE CARD

Packaging

SHIPPING EQUIPMENT

The K. E. Savage Company has just issued a new booklet describing their bagging and shipping equipment. Included are descriptions of a shipping mill to be used with the Savage bag conveyor, sewing machine stand; horizontal and inclined belt Conveyors; and truck loading Conveyors. Specifications for the mill are given, together with helpful information on overall sizes of areas needed for installation of this equipment. Many customers do the installing themselves, since the mills are supplied with all motors, drives, controls, bolts, and assembly fixtures. To learn how you can adapt this bagging and shipping equipment to your operation,

CIRCLING 169 ON SERVICE CARD

Application Equipment

SPRAYING EQUIPMENT

Century Engineering Corporation has issued a helpful new Sprayer Manual for 1961. It pictures and describes their line of spray equipment, and also contains useful information in the use of the sprayers, as well as figures on cost-per-acre. Advice on nozzle, tank, and pump requirements is also given. To find out more about this complete line of spraying equipment,

CIRCLING 170 ON SERVICE CARD

FIBERGLAS TANKS

A new bulletin has been issued, concerning fiberglass tanks for heavy duty chemical storage and processing service. These are chemical-resistant, light weight, non-aging, high strength, non-contaminating, and low cost. There is a new price list, representing savings of almost 40% as compared to the original prices, and is a result of a process development in the manufacture of these fiberglass tanks which enables Justin Enterprises, Inc., to pass on to their customers new economies and savings. A handy chart is included which shows the resistance of fiberglass reinforced polyester resins to various chemicals, classified as A—no attack; B—no appreciable attack; NR—not recommended; and RT—room temperature. To find out more about these 20-gallon to 20,000-gallon capacity tanks, just

CIRCLING 171 ON SERVICE CARD

See page 38 for information on
these Reader Service Numbers:

172—Liqualizer

173—Built to Last

174—Piper Swathmaster

175—We've Used It

To use Reader Service Card on page 10: Circle number of literature you want. Print or type your name, position, company and address. Clip and mail.

NEWS OF THE INDUSTRY

product supervisor for textile and waterproof products. Succeeding Windhorst will be Norman P. Uffman, product sales manager of the St. Louis Specialty department. Uffman began with Bemis as an office boy in 1933, becoming assistant department manager in 1942, and manager and product sales manager in 1952.

Central Farmers Fertilizer Co.'s controller and treasurer, Edward E. Rennhack, has been elected to membership in the Controllers Institute of America.

Collier Carbon and Chemical Corp. Burton W. Graham has been named vice president of marketing by the company. Graham will coordinate and direct Collier's expanding industrial and agricultural chemical marketing organization. He has held responsible positions with other chemical companies in Baltimore, New York and Chicago.



Graham

Allis-Chalmers Mfg. Co. John W. Carlson becomes general manager of the Engine-Material Handling Div.

National Distillers and Chemical Corp. Austin R. Zender and D. Swing Starring

have been elected directors of the company and Zender has been elected to the new office of chairman of the executive committee, according to John E. Bierwirth, National's board chairman. The announcement coincided with the effective date (June 30) of the merger of Bridgeport Brass Company into National. Both men have been associated with Bridgeport Brass for many years.

Food Machinery and Chemical Corp. For the past five years, Robert E. Purcell has been the Chicago district sales manager. Now he has been appointed as sales manager for Phosphorus Chemicals. He started in 1950 as a specialist in complex phosphates, and later became technical representative for phosphates, and subsequently for alkali product. Taking his place will be Robert J. Mawe, who joined FMC in 1955 and has held various sales positions with the firm. Michael T. Dwyer replaces Mawe as district sales manager in Cincinnati. He has been sales representative in the Division's Chicago district.

Vulcan-Associated Container Companies, Inc. has elected David W. Lynch vice president—sales, with headquarters in Birmingham.

Dodge & Olcott sales force addi-

tions: T. Fred Baker will operate from the D&O St. Louis branch, and Robert Bjorn from the Chicago branch.

Government

Both development and use of insecticides in the Soviet Union are discussed in a new collection of Soviet articles. The series covers "Trends In Soviet Insecticide Research," "Organophosphorus Insecticides," and "Chief Means of Applying Pesticides." The translations are now available through Office of Technical Services, Business and Defense Services Administration, U. S. Department of Commerce, Washington 25, D.C.

"**Limits of Allowable Concentrations of Atmospheric Pollutants**" is Book Four in the series of surveys of Soviet technical literature. It covers the use of a portable, automatic aspirator, devised by Soviet engineers to record quantitative fluctuations in air pollution concentrations. The book is available in English from Office of Technical Services, Business and Defense Services Administration, U.S. Department of Commerce, Washington 25, D.C.

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Dust protection your workers will welcome and wear in even the HOTTEST weather

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with STAINLESS STEEL studs, nuts,
impeller sleeve and shaft seal



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or
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This is our Fig. 645 Nozzle. Used for Scrubbing Acid Phosphate Gases. Made for "full" or "below" cone in brass and "Everdur." We also make "Non-Clog" Nozzles in Brass and Steel, and

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THE MOST MODERN
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One, Two, Three and Four Colors for
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Wanted: your problems

On November 14-15, the third annual FCMS (Farm Chemicals Marketing Seminar) will again be conducted in New York City by this magazine. The theme will be "Solving Your Marketing Problems in the Sixties."

Last month we discussed the "miracle man" in farm chemicals marketing. We received enough response to indicate that we may have touched on a vital subject. Thus, since the FCMS theme will deal with *problems* and the "miracle man" in farm chemicals marketing is beset with them, let's pursue the subject further.

Al N. Seares, president of Alderson Associates, Inc., Philadelphia, and whom we quoted at length last month, described the "top 15 problems of sales management" in the May 1960 issue of "The Pennsylvania Business Review." They were determined, by the way, from a National Sales Executive survey.

Seares said that "it was amazing to discover that in another survey made 10 years ago to determine the weaknesses of salesmen, these top three problems were highlighted.

"Why have knowledgeable sales executives failed to take concerted, corrective action in this interval of time?" he asked.

Let's take a look at these current top problems of sales management.

1. Effectively motivating salesmen.
2. Increasing effective selling time.
3. Developing creative selling techniques.
4. Evaluating training and performance.
5. Effectively supervising sales.
6. Recruiting, interviewing, and selecting.
7. Planning successful sales meetings.
8. Bettering the salesman's attitude.
9. Properly using sales promotion aids.
10. Effectively forecasting sales.
11. Developing sales supervisors.
12. Developing profitable sales analyses by salesmen.
13. Measuring the impact of competitive practices.
14. Setting equitable sales quotas.
15. Securing buyer motivation data.

The results of this survey prompted a collateral study to determine the top 10 reasons for the failure of salesmen. Twenty-six primary failure factors were listed. The following 10 were given as the top contributing reasons for this costly turnover:

1. Lack of planning ability and time utilization; poor work habits.
2. Lack of industry and drive.
3. Lack of resourcefulness.
4. Lack of observation of sales possibilities.

5. Lack of self-evaluation and self-development.
6. Lack of self-confidence and enthusiasm.
7. Failure to develop interest on the part of the customer with his sales presentation.
8. Inability to meet objectives; slow, uncreative thinking.
9. Inability to develop successful closing techniques.
10. Lack of ambition.

Seares suggests that we note the amazing correlation between the top problems of sales management and the top reasons given for the failure of salesmen.

"Assuming that the development of a marketing executive is related to these contributory conditions," Seares said, "we certainly need to redouble our efforts if we are to raise the professional standard of marketing management."

Last month we brought you the NSE's findings on the "top 15 reasons why marketing executives miss the responsibility target." This was a further effort to help sales executives determine the type of development they need most. Upon the completion of last year's FCMS, FARM CHEMICALS surveyed those attending to determine how the FCMS could be improved. In effect, we learned more about what kind of help these people felt they needed. Here are some of the comments concerning what certain people were looking for at FCMS:

- "To bring out faults which we frequently overlook."
- "It is in the area of marketing where agricultural chemicals firms must make their greatest advances. Those that don't will surely be eliminated or sorely pressed to stay out of the red. Therefore, I firmly believe in a program where the interchange of ideas and experience is possible."
- "... The people one meets often have information that is useful in future planning."
- "... How I wish my superiors were here (at FCMS) because they will make the decisions which determine whether our company is or is not marketing-oriented."

As noted from the above remarks, there's something about FCMS that makes people *dissatisfied* with their marketing efforts. However, like the execution of sound marketing strategy, FCMS "provides the essential linkage between where you and your company are—and where you *want* to be."

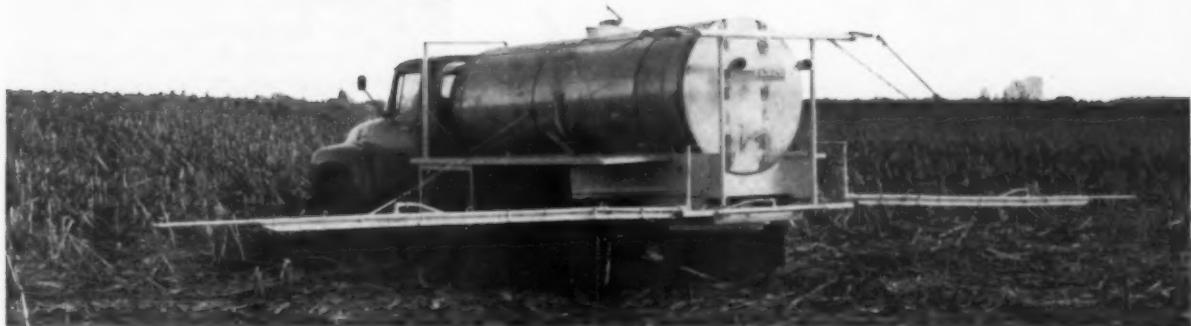


Gordon L. Berg
EDITOR



This mark tells you
a product is made of
modern, dependable Steel.

this Stainless Steel tank



can cover 190 acres in one day



Van Stephenson, manager of the Victory Liquid Fertilizer Company of Mt. Victory, Ohio, makes complete liquid fertilizers and chemical solutions but doesn't spread them. He relies on companies like Victory Distributors to do it for him *fast*.

With their 1200 gallon Stainless Steel tank, Victory Distributors has spread as much as 49 tons of material and has covered 190 acres—*in one day*.

A Stainless Steel liquid fertilizer tank does more work faster, because it's corrosion-resistant. There's never any scale formation in a Stainless tank, so there's no

work stoppage, no unnecessary cleaning, no wasted time. This means Stephenson can keep on schedule, keep customers satisfied and naturally end up with more business.

If you would like more information about Stainless Steel liquid fertilizer tanks, send the coupon. For Stainless Steel, call your nearest Steel Service Center.

United States Steel Corporation • American Steel and Wire Division • National Tube Division • Columbia-Geneva Steel Division • Tennessee Coal & Iron Division • United States Steel Supply Division • United States Steel Export Company

United States Steel, Room 6337, 525 William Penn Place, Pittsburgh 30, Pennsylvania

Please send me a copy of your free booklet, "Stainless Steel Tanks For All Farm Chemicals."

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"Thanks
for
going
steady.....



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Canadian Sales Office:
2 Carlton Street, Toronto 2, Ontario

says Big Chief Kay-Two-Oh. And it's not Minnehaha he has in mind, but YOU, the loyal customers who've re-ordered Potash again for the coming season.

"Moon after moon (Indian bop talk for 'time after time'), paleface buyers prove faithful in ordering from Pee-Cee-A-Tribe. Me heap grateful." That's a long speech for the usually silent Big Chief. It's his way of saying "Thanks" for your contract, and of letting you know that he means to keep your good will by keeping Pee-Cee-A service the best this side of the Happy Hunting Grounds.

In closing the Chief says "How". Which means: if there's any way the Pee-Cee-A scout in your territory can be of service to you, send him a smoke signal and tell him "How".

When you're in Manhattan stop by the Chief's wigwam at 630 Fifth Avenue and let him make you welcome.

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PCA Standard 60% Muriate of Potash

PCA Coarse 60% Muriate of Potash

PCA Granular 60% Muriate of Potash

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Sulphate of Potash

